ICF-SW7600

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model

SPECIFICATIONS

Circuit system	FM: Superheterodyne AM: Dual conversion superheterodyne
Frequency range	FM: 76–108 MHz 87.5–108 MHz LW: 150–528 kHz 150–285 kHz MW: 530–1,610 K (With the MW CH STEP selector at 10 kHz) 531–1,611 kHz (With the MW CH STEP selector at 9 kHz) SW: 1,615–26,100 kHz 1,615–29,995 kHz
Antennas	Telescopic antenna (FM/SW) Built-in ferrite bar antenna (MW/LW)
Speaker	Approx. 77 mm ($3^1/_8$ inches) dia. 8 ohms
Power output	400 mW (at 10% harmonic distortion) Recording output jack (minijack) output level 0.775 mV (–60 dB) output impedance 1 kilohm Headphone jack (stereo minijack) for 16 ohm stereo earphones
Power requirements	6 V DC Four R6 (size AA) batteries Supplied AC power adaptor (110, 120, 220 or 240 V AC adjustable, 50/60 Hz) Optional DCC-127A car battery cord for use with 12 V car battery Optional DCC-240 car battery cord for use with 24 V car battery
Battery life	Approx. 10 hours of listening for four hours a day at a normal volume, using Sony SUM-3 (NS) batteries
Dimensions	Approx. 191.2 × 118 × 32.3 mm (w/h/d) ($7^5/_8$ × $4^3/_4$ × $1^5/_{16}$ inches) including projecting parts and controls
Weight	Approx. 615 g (1 lb. 5.7 oz.) including batteries
Accessories supplied	Stereo earphones (1), Ear pad (2), AC power adaptor (1, except the model for Oceanian countries), AC plug adaptor (1, except the model for Europe, North America and Oceanian countries), Wave handbook (1), Antenna connector (1), Carrying case (1), Compact antenna (1)

Design and specifications subject to change without notice.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

LW/MW/SW/FM STEREO PLL SYNTHESIZED RECEIVER

SONY®

MICROFILM

TABLE OF CONTENTS

Section	Title	Page
	SPECIFICATIONS	1
	Features	2
	SECTION 1. GENERAL	
1-1.	Location and Function of Controls	3
1-2.	How to Set the Clock	4
1-3.	Direct Tuning	4
1-4.	Manual Tuning	5
1-5.	Scan Tuning	5
1-6.	Preset Tuning	6
1-7.	How to Tune in Precisely	6
	SECTION 2. OUTLINE	
2-1.	Outline of the C-MOS Digital-tuning System IC201, μPD1715G-558-22 and μPD1715G-569-22	
2-1-1.	Outline of the Station-selection	7
2-1-2.	Description on the Terminals	8
2-1-3.	Initial-state Setting	11
2-1-4.	Muting-output Timings	11
2-1-5.	Segments and Commons of Liquid-crystal Display panel (LCD201)	13
2-1-6.	Relationship of LCD(LCD201) Segments to LSI pins	13
	SECTION 3. DISASSEMBLY	14
	SECTION 4. ELECTRICAL ADJUSTMENTS	14
	SECTION 5. DIAGRAMS	
5-1.	IC Block Diagram	17
5-2.	Printed Wiring Boards	18
5-3.	Schematic Diagram	21
	SECTION 6. EXPLODED VIEWS	24
	SECTION 7. ELECTRICAL PARTS LIST	26

FEATURES

- An LW/MW/SW/FM stereo receiver with world-wide band coverage.
- Quartz controlled PLL (Phase Locked Loop) synthesizer system using a microcomputer for easy pinpoint tuning. The tuned frequency is digitally displayed.
- Fine tuning control for precise tuning.
- SSB (Single side band) can be received.
- Provided with a recording output and a remote control jack. Connecting the unit to the optional Sony TCM-27 cassette-corder using these jacks, you can start recording programs at a desired time.

• Various ways of tuning

Direct tuning ... Tuning in the station by inputting the frequency of the station directly.

Manual tuning .. Even if you don't know the frequency of the station, you can tune in the station precisely.

Scan tuning .... An automatic searching of a station.

Preset tuning .. Up to 10 stations can be preset for button-touch tuning.

• Other features

Timer standby .. The function to receive a desired station at a desired time.

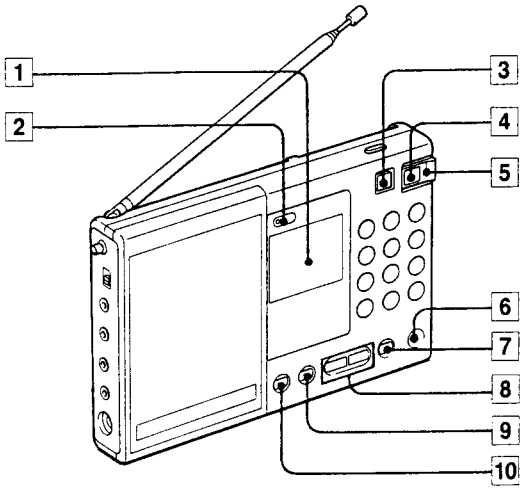
Sleep timer .... Turning the radio off automatically in 65 minutes.

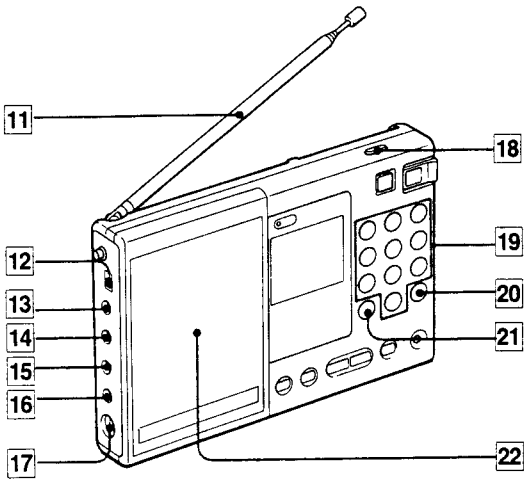
Power sources . Three different power sources: internal batteries, house current, car battery.
With the supplied AC power adaptor, any AC power source is available.

SECTION 1
GENERAL

1-1. LOCATION AND FUNCTION OF CONTROLS

Front Panel





1 Display window

2 TUNE (tuning) indicator
Lights up when a station is tuned in.

3 SLEEP (sleep timer) button

4 ON/OFF (power) button

5 POWER/LOCK switch
Set this switch to POWER, then press the ON/OFF button to turn on the radio. Set the switch to LOCK when carrying the radio. When this switch is set to LOCK, the power will not be turned on even if you press the ON/OFF button.

6 KEY PROTECT ⊶ button

7 SCAN TUNING START STOP/STANDBY button

8 MANUAL TUNING/SET button

9 BAND/ALARM (alarm set) button

10 ENTER/TIME (time set) button

11 Telescopic antenna

12 SENS DX• •LOCAL (FM/AM sensitivity) selector

13 EXT ANT (external antenna) jack

14 TAPE REMOTE jack

15 TAPE REC OUT jack

16 ∩ (headphones) jack

17 DC IN 6 V ⊙-⊂-⊖ (external power input) jack

18 LIGHT button
Press to illuminate the display window for about 15 seconds.

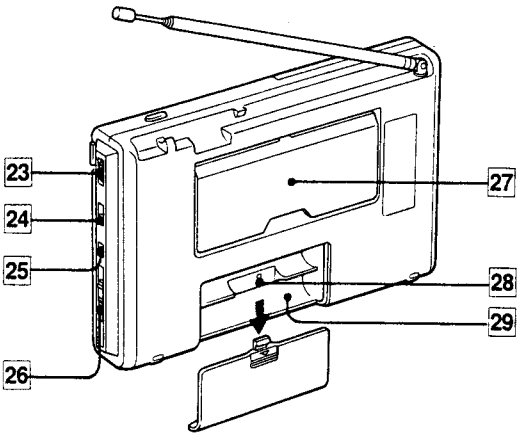
19 PRESET/DIRECT TUNING buttons

20 FM/EXECUTE button

21 AM/EXECUTE button

22 Speaker

Rear Panel



23 FINE TUNING control

24 AM MODE selector

25 TONE selector
Music: for listening to music
News: for listening to news

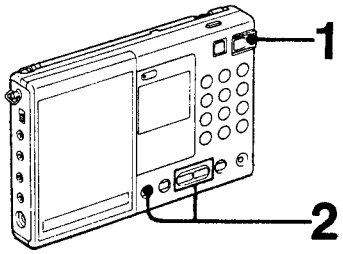
26 VOLUME control

27 Stand

28 MW CH STEP (MW channel step) selector

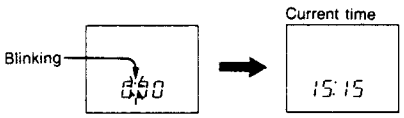
29 Battery compartment

1-2. HOW TO SET THE CLOCK



1 Set POWER/LOCK to POWER.

2 Press SET while keeping TIME pressed to adjust the clock to the current time.
Each press on SET advances the time digit by one.
To advance the time digits rapidly, keep SET pressed.



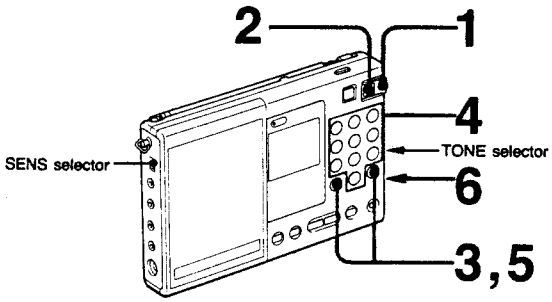
3 Release TIME.
The clock will begin to operate.

Setting the clock while listening to the radio
You cannot set the clock while you are listening to the radio. Be sure to press ON/OFF to turn the radio off and set the clock.

The display when the radio is turned off
The current time is displayed.

Zero second adjustment
If you want to adjust the time exactly to the second with a telephone time signal, proceed as in the following example.
Example: To set to 15:15
1 Adjust the time indication to 15:15 and keep TIME pressed.
2 Release TIME simultaneously with the telephone time signal.
The clock will then begin to show the precise time.

1-3. DIRECT TUNING



1 Set POWER/LOCK to POWER.

2 Press ON/OFF.
The radio is turned on.

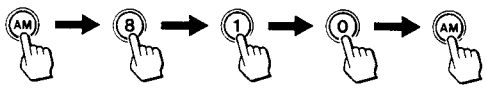
3 Press the desired band (FM/EXECUTE or AM/EXECUTE) button.
To receive SW, MW, LW, press AM.

4 Input the frequency of a desired station by pressing PRESET/DIRECT TUNING.

5 Press the same band button again within 5 seconds.
The station will be tuned in.

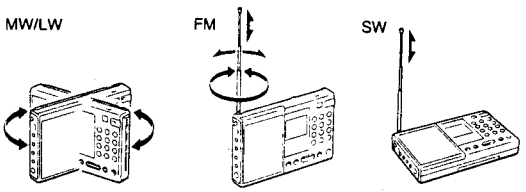
6 Adjust the volume.

e.g. AM 810 kHz



To turn off the radio, press ON/OFF.

To improve receiving condition



If you input a wrong frequency
Press **FM/EXECUTE** or **AM/EXECUTE** again and input the correct frequency.

If you do not press FM or AM EXECUTE within 5 seconds after you input a frequency
The frequency indication turns to the previous one and you will hear the station of its frequency.

When the frequency near the input frequency is displayed
The frequencies which this radio receives are allocated in the following intervals depending on the broadcast band.
If you input a frequency that does not match these intervals, the frequency just below the one that you input will be tuned in and will be displayed.

FM	0.05 or 0.1 MHz	SW	5 kHz
MW	9 kHz*	LW	3 kHz

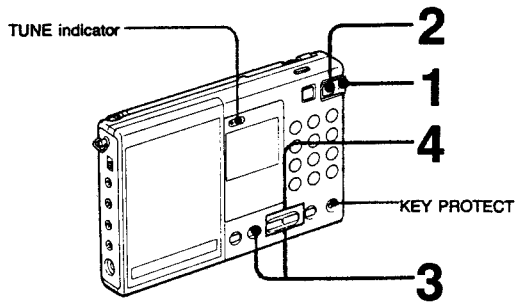
* Possible to change to 10 kHz depending on the country where used.

If TRY AGAIN! indication appears
If you input the frequency outside the frequency range, TRY AGAIN! blinks. When you press FM/EXECUTE or AM/EXECUTE again, this indication will disappear. If you do not press the button, it will disappear after 5 seconds and the frequency of the previously tuned station will appear.

When the sound is distorted
Normally set SENS to DX, however, when the sound is distorted set it to LOCAL.

When you are listening to the news
Set TONE to NEWS. Human voice will be heard more clearly. When you are listening to music, set it to MUSIC.

1-4. MANUAL TUNING



1 Set POWER/LOCK to POWER.

2 Press ON/OFF.
The radio is turned on.

3 Press MANUAL TUNING (+ or −) repeatedly while keeping BAND pressed to search for the approximate frequency of a desired station.
The lowest frequency of each band or the meter band of SW appears in the display.
If you keep MANUAL TUNING pressed, the band changes continuously.

4 Press MANUAL TUNING (+ or −) repeatedly to search for a desired station.

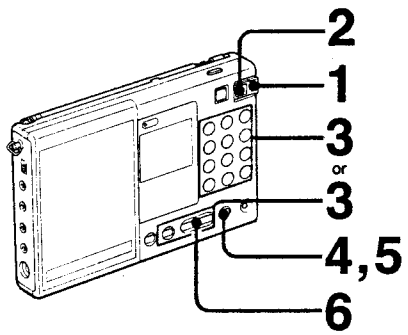
To prevent accidental change of the receiving station
Press KEY PROTECT. The ⊶ mark appears in the display window and all the buttons on the front panel will not work.
To release the KEY PROTECT function, press KEY PROTECT again.

When the station is tuned in
The TUNE indicator lights up.

Frequency band changes continuously
If you keep MANUAL TUNING (+) pressed, the frequency band being tuned in will change from LW to MW, SW, FM and then back to LW.

What is meter band?
SW is devided into 13 bands by the wave length (meter).
Each band is called meter band.

1-5. SCAN TUNING



1 Set POWER/LOCK to POWER.

2 Press ON/OFF.

3 Receive a broadcast band by pressing MANUAL TUNING while keeping BAND pressed, or by pressing PRESET/DIRECT TUNING.

4 Press SCAN TUNING START/STOP.
Within the frequency range of the table on the right page, scan tuning will begin and stop automatically for 1.5 seconds when a station is received and then the tuning indicator lights up.

5 Press SCAN TUNING START/STOP again to listen to the station being received.

6 Tune in the station more precisely by MANUAL TUNING (+ or −), if necessary.

The frequency range and the tuning interval of each broadcast band

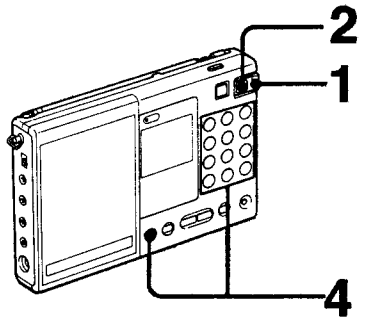
Broadcast band		Frequency range	Frequency allocation	
AM	LW	150—285 kHz	3 kHz step*1	Saudi Arabia
		150—528 kHz		Other countries
	MW	531—1611 kHz	9 kHz step	
		530—1610 kHz	10 kHz step	
	SW	1615—2245 kHz		*2
		2250—2550 kHz		120 meter band
		3150—3450 kHz		90 meter band
		3850—4050 kHz		75 meter band
		4700—5100 kHz		60 meter band
		5900—6250 kHz		49 meter band
		7000—7400 kHz		41 meter band
		9400—10000 kHz		31 meter band
		11500—12150 kHz		25 meter band
		13500—13900 kHz		21 meter band
		15000—15700 kHz		19 meter band
		17450—18000 kHz		16 meter band
		21400—21950 kHz		13 meter band
		25600—26100 kHz		11 meter band
		26105—29995 kHz		*3
FM		87.50—108.00 MHz	0.05 MHz step	*4
		76.00—108.00 MHz	0.1 MHz step	*5

*1 Some of the LW stations are not tuned in with the 3 kHz interval. When you try to tune in them, first tune in the frequency near them and then tune in precisely with FINE TUNING.
*2 These frequencies can be tuned in either by direct tuning or manual tuning but cannot be selected by pressing both BAND and MANUAL TUNING.
*3 Except for Saudi Arabia
*4 France, Germany, Switzerland, Scandinavian countries and Saudi Arabia
*5 Countries other than *4

When scanning stops too often
Set SENS to LOCAL.

1-6. PRESET TUNING

How to Preset a Station



1 **Set POWER/LOCK to POWER.**

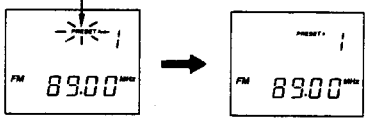
2 **Press ON/OFF.**

3 **Tune in a desired station.**

4 **Press one of the PRESET/DIRECT TUNING buttons while keeping ENTER pressed.**
The desired station is stored on that button.

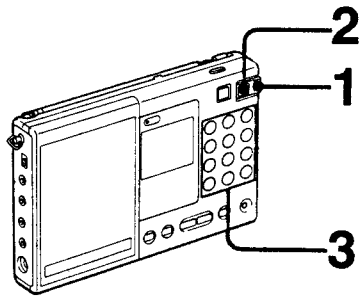
e.g. To preset FM 89.0 MHz on the button 1

Blinks while ENTER is pressed.



The number of the stations you can preset
Up to 10 FM and AM stations in total can be preset on the PRESET/DIRECT TUNING buttons. You can store only one station on each button.

To Tune in a Preset Station



1 **Set POWER/LOCK to POWER.**

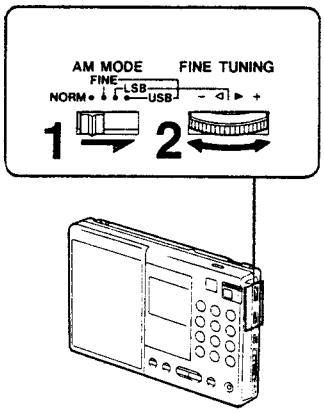
2 **Press ON/OFF.**

3 **Press a desired PRESET/DIRECT TUNING button.**
The preset station will be tuned in.

To check the preset station
Press PRESET/DIRECT TUNING while pressing BAND. The frequency of the preset station is displayed. You can check anytime even if another station is tuned in.

To change the preset station
Store a station on a desired PRESET/DIRECT TUNING button. The station previously stored on the button is erased.

1-7. HOW TO TUNE IN PRECISELY



This radio receives the station at the interval of frequency shown in the list on pages ⓫, ⓬. To receive a station whose frequency does not coincide with this interval, it is necessary to adjust the tuning in approx. ±5 kHz range by FINE TUNING. In this case, the frequency display will not change.

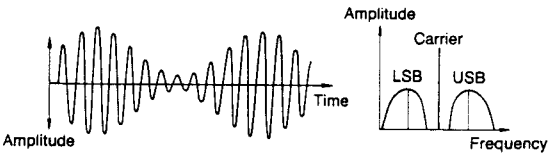
1 Set the AM MODE selector to the appropriate position.

Position	Broadcast type
NORM	Fine tuning does not operate in this position
FINE	For LW/MW/SW reception (DSB, Double side band)
LSB*1	For ham and CW reception (below 10 MHz)
USB*2	For ham and business radio reception (above 10 MHz)

*1 Lower side band
*2 Upper side band

2 Adjust the tuning with FINE TUNING.
+: For a frequency up to approx. 5 kHz higher
−: For a frequency up to approx. 5 kHz lower

SSB (Single side band)
SSB is very popular among ham and business radio and will be found on all of the amateur bands because of its signal intelligibility. This results from that it transmits signals with half bandwidth of DSB (Double side band).
Typical AM (MW, LW, SW) band uses DSB. In DSB transmission, the amplitude of a carrier is modulated according to transmitted frequencies as shown below.



USB: Upper side band
LSB: Lower side band

Audio signals are included both in USB and LSB. These signals included in USB and LSB are the same ones except that they are in the opposite phase relation.
This means that transmission can be done using only one of USB and LSB. SSB transmission is the system in which such a method is used. In general, SSB transmissions up to 10 MHz shall employ LSB modulation, and those above this frequency shall use USB. To receive SSB transmission, the unit with the BFO (Beat Frequency Oscillator) circuits is needed to convert SSB signals into audio signals. SSB cannot be heard with the radio which has no such circuits.

CW (Continuous wave)
CW is also popular among ham and business radio. In CW transmission, the amplitude of a carrier is not modulated while that of other systems is modulated. CW conveys information by interrupting a carrier using Morse code. It can be heard as a beat sound only with the unit equipped with the BFO circuits. To understand information transmitted by CW, you need to learn the Morse code.

SECTION 2
OUTLINE

2-1. OUTLINE OF THE C-MOS DIGITAL-TUNING SYSTEM IC201, μPD1715G-558-22 OR μPD1715G-569-22

2-1-1. OUTLINE OF THE STATION-SELECTION

1) Receiving-frequency Coverages and Scan Range
The following table shows the frequency coverages and scan range of μPD1715G-558-22 or μPD1715G-569-22 can receive.

BAND	SCAN RANGE	CHANNEL SEPARATION	NOMINAL SPACING
LW	150kHz — 285kHz	3kHz	3kHz
	150kHz — 528kHz		
MW	531kHz — 1611kHz	9kHz	3kHz
	530kHz — 1610kHz	10kHz	5kHz
※1	1615kHz — 2245kHz	5kHz	5kHz
	2250kHz — 2550kHz	5kHz	5kHz
	3150kHz — 3450kHz	5kHz	5kHz
	3850kHz — 4050kHz	5kHz	5kHz
	4700kHz — 5100kHz	5kHz	5kHz
	5900kHz — 6250kHz	5kHz	5kHz
	7000kHz — 7400kHz	5kHz	5kHz
SW	9400kHz — 10000kHz	5kHz	5kHz
	11500kHz — 12150kHz	5kHz	5kHz
	13500kHz — 13900kHz	5kHz	5kHz
	15000kHz — 15700kHz	5kHz	5kHz
	17450kHz — 18000kHz	5kHz	5kHz
	21400kHz — 21950kHz	5kHz	5kHz
	25600kHz — 26100kHz	5kHz	5kHz
※2	26105kHz — 29995kHz	5kHz	5kHz
FM	76.00MHz — 108.00MHz	100kHz	12.5kHz
	87.50MHz — 108.00MHz	50kHz	12.5kHz

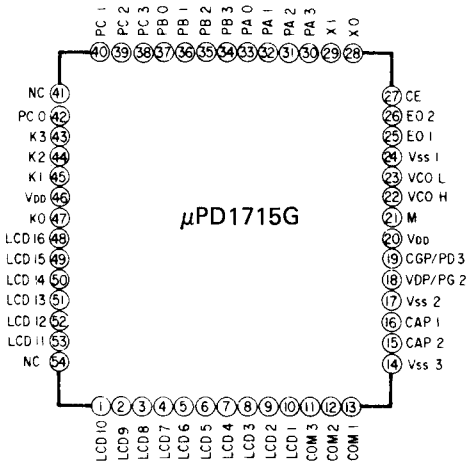
Note: Either direct or manual selection is feasible for ※1 frequency range or meter band, but BAND SELECT key is inoperative.
Able to scan.
※2 range, but unable to receive during in up/down mode.

2) Station-selecting Functions:

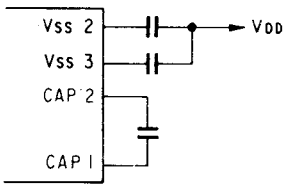
a) Selection with 10 key.
b) Manual up/down selection with up/down key.
c) Random selection out of the preset memories by key-in calling.
Total 10 stations.
d) Scanning selection.
e) Last channel memory.

2-1-2. DESCRIPTION ON THE TERMINALS

1) Terminal Arrangement



2) IC201 (μPD1715G) Pin Functions

PIN No.	SYMBOL	NAMING	DESCRIPTION
1 | 10	LCD9 | LCD1	LCD SEGMENT SIGNALS	Transmit the segment-output signals to the LCD panel. When matrixes are configured together with the COM1 thru COM3, a display of 48 dots can be made. These output signals are output when the LCDD commands are made. The LCD-driving voltages are of 3.1V typical, 1/2 bias and 1/3 duty when the frame frequency is 100 Hz. These LCD11 through LCD16 can also be used at the same as the key source signals for the key matrix. These signal are output on time-division bases, and they are output as the key-source signals at the repetition rate of 6.7 msec. Whether the key-source signal are to be output while having displays on the panel is dependent upon and selectable by the programs used. These terminals become automatically in the "L" (low) state, i.e., non-display mode, at the power-on reset (VDD changes from low to high state) and at the stoppage moment of the clock. The display mode does not change at the reset moment in which CE changes from low to high state.
11 | 13	COM3 | COM1	LCD COMMON SIGNAL	Transmit common signals to the LCD panel. When the matrixes are configured together with the LCD1 through LCD16, a display of 48 dots can be made. Three distinctive signals of VSS3, VSS2 and VDD are output through these terminals at the repetition rate of 50 Hz. These terminals become automatically in the "L" (low) state, i.e., non-display mode, at the power-on reset (VDD changes from low to high state) and at the stoppage moment of the clock.
14 15 16 17	VSS3 CAP2 CAP1 VSS2	CAPACITOR CONNECTION TERMINAL FOR DOUBLER	Capacitor-connection terminals to make a proper voltage doubler to build the 3.1V typical LCD-driving voltage VDD. Normal circuit configuration is as follows. 
18	PG2 (VDP)	VARIABLE DUTY PORT	Outputs the variable-duty or the one-bit (PG2) signal. Not used.
19	PD3 (CGP) MUTE	CLOCK GENERATOR PORT (MUTE SIGNAL)	Outputs the clock-generator or the one-bit (PD3) signal. The selection of either of them is programmable. When used as the CGP, this terminal can transmit the pulse chain of 1 kHz of 46.6% duty or 3 kHz of 60% duty. Outputs signal to cut noise between frequency change due to key input and PLL lock, Low level output actuates mute.
20	VDD	INPUT OF POWER SUPPLY VOLTAGE	Receives the power-supply voltage for this device. In operation, a voltage of 2.0 to 3.5 VDC is applied to this terminal. The input voltage can be lowered down to 1.5 VDC when any of the internal data in the RAM, i.e., when the CKSTP command is under execution, is to be holded. The power-on reset circuit of device starts to operate at the instance this terminal receives a voltage of 0 (zero) to 1.7 VDC, and the program starts from the location 0 (zero). Note: This pin and pin 46 are connected internally. So, it is not necessary to apply the power-supply voltage to both of them. The ceramic-packaged device, however, has a not-to-be connected pin 46, i.e., N.C. terminal.

<table>
<tr><th>PIN NO.</th><th>SYMBOL</th><th>NAMING</th><th>DESCRIPTION</th></tr>
<tr><td>21</td><td>M</td><td>CONTROL-SIGNAL INPUT FOR DIVIDER</td><td>Determines the dividing ratio of the fixed-division prescaler.
A 1/4 dividing ratio is made when this terminal is held at "H" (high), and a 1/2 divider is made when held at "L" (low).
This port is used only when the VCOH terminal (FM in this set) i.e., pin 22 is used.
This set uses this port as a 1/4 divider for FM and 1/2 divider for AM.</td></tr>
<tr><td>22</td><td>VCOH</td><td>OSC SIGNAL INPUT</td><td>Inputs 1/4 divider 10 ~ 130 MHz (0.1 Vp-p MIN.) or 1/2 divider 10 ~ 100 MHz (0.1 Vp-p MIN.) of local-oscillator output, i.e., the VCO output. This input signal is connected internally in this device through the 1/2 fixed-divider prescaler or the 1/4 fixed-divider prescaler and through the two-module prescaler composed of 1/32 and 1/33 frequency dividers to the internal programmable counter.
This terminal is pulled down to the ground level when the direct frequency-dividing system is taken into the circuit or when the Pulse-Swallow system is used with the HF command executed, i.e., the VCOL (AM) terminal is selected.
A capacitor coupling is needed due to the inclusion of alternate current amplifiers inside this device.</td></tr>
<tr><td></td><td>VCOL</td><td></td><td>Receives an AM local-oscillator signals, i.e., the VCO signal from 0.5 MHz to 40 MHz of 0.2 Vp-p minimum.
This port is selected when the direct frequency-dividing system or the Pulse-Swallow system is used and, at the same time, the HF command is excecuted. These two systems are, however, different one another as shown below.
<table>
<tr><th>DIVIDING SYSTEM</th><th>INPUT LEVEL (MINIMUM)</th><th>INPUT FREQUENCY</th><th>DIVIDING RATIO</th></tr>
<tr><td>DIRECT</td><td>0.1 Vp-p</td><td>0.5 to 15 MHz</td><td>16 to (2^{12}-1)</td></tr>
<tr><td>PULSE-SWALLOW (HF COMMAND EXECUTED)</td><td>0.2 Vp-p</td><td>0.5 to 40 MHz</td><td>1,024 to (2^{17}-1)</td></tr>
</table>
This terminal is pulled down to the groung level when the Pulse-Swallow system is used together with the VHF-command execution, i.e., the VCOH (FM) terminal is selected. A capacitor coupling is needed due to the inclusion of alternate current amplifiers inside this chip. Not used.</td></tr>
<tr><td>24</td><td>Vssl</td><td>GROUND</td><td>The ground-return terminal of this device.</td></tr>
<tr><td>25

26</td><td>E01

E02</td><td>ERROR OUTPUT

ERROR OUTPUT</td><td>Transmits the error signal of the PLL system. When the resultant frequencies obtained by dividing the local-oscillator frequencies are higher than the reference frequency, an "H" (high)-level signal is output from this port. When these are lower, on the contrary, an "L" (low)-level signal is output from this port. When these divided frequencies just coincide with the reference frequency, this port becomes in a floating state. These output signals from this port then go through the external lowpass filter to the varactor diodes in the turned circuits in these frontends of the receiver. The same output waveform as the terminal E01 is obtainable from the next terminal E02, pin 26, and so these two are user-selectable. When the PLL is disabled, i.e., when the system is set by the PLL commands or the CE terminal, pin 27, is set to the "L" (low)-level, these E01 and E02 terminals become in the floating states.</td></tr>
<tr><td>27</td><td>CE</td><td>CHIP ENABLE</td><td>Receives the state-selection signals for this device.
When set a "H" (high), this device works, and vice versa. The PLL section of this device becomes forcively in a disabled condition in the duration of wider than 140 μsec of the "L" (low)-level state. The duration, however, of shorter than 140 μsec is not taken into account. The programmes are using the CKSTP commands. The CKSTP commands are effective only when the state of this CE is in an "L" (low) condition. When this CE terminal is in an "H" state, these programmes work like under NOP commands.
When the CKSTP commands are executed when this CE terminal is in an "L" (low) level, the internal clock generator and the internal CPU are disabled. In this disabled condition, the RAM-memory backupings can be made under a very-low current consumption of 3 μA maximum. In this condition, these display-output signals LCD1 through LCD16 and the COM1 COM3 become in the off-display mode, i.e., the "L" (low) state.
When the level of this CE terminal is changed from "L" to "H", this device is reset and its programmes start from the location "0" (zero). In this state, the Port A becomes in the input mode.
Goes to "L" (low) when main power switch is OFF or when the power supply is below 1.9V (1.8 – 2.0 V).</td></tr>
</table>

<table>
<tr><th>PIN NO.</th><th>SYMBOL</th><th>NAMING</th><th>DESCRIPTION</th></tr>
<tr><td>28
29</td><td>XO
X1</td><td>CRYSTAL OSCILLATOR</td><td>An external quartz-crystal oscillator connects to these terminals to obtain 75 kHz signal generator for the devices.</td></tr>
<tr><td>30
|
33</td><td>PA3
|
PA0</td><td>PORT A</td><td>4-bit I/O (Input/Output) ports. These ports enable the device designate input or output bit by bit. The each designation is, in turn, performed by the contents in the location "1FH" in the "BANK 0 (zero)" in the data memory (RAM), called as a "PAIO word". At these instances as the power-on, clock stoppage and the initial setting of the CE terminal from "L" to "H", these terminals automatically become in the input ports.
Under the port-operation commands like "IN", "OUT", "SPB", "RPB" commands, etc., the PA0 port coincides with the least significant bit of the registor or the operand, the PA3 coincides with the most-significant bit of them. The same applies to the port B and Port C respectively.</td></tr>
<tr><td>(30)</td><td>PA3
(SD)</td><td>PORT A</td><td>When receiving a broadcast station, it goes to "H" (high), and tuning LED lights. It is used as a stop signal for scan function.</td></tr>
<tr><td>(31)</td><td>PA2</td><td>PORT A</td><td>Initial key input port.</td></tr>
<tr><td>(32)</td><td>PA1</td><td>PORT A</td><td>Mode output.
<table><tr><th></th><th>RADIO OFF</th><th>LW/MW</th><th>SW</th><th>FM</th></tr><tr><td>PA1</td><td>"L"</td><td>"L"</td><td>"H"</td><td>"H"</td></tr><tr><td>PA0</td><td>"L"</td><td>"H"</td><td>"L"</td><td>"H"</td></tr></table></td></tr>
<tr><td>(33)</td><td>PA0</td><td>PORT A</td><td></td></tr>
<tr><td>34
|
37</td><td>PB3
|
PB0</td><td>PORT B</td><td>4-bit exclusive output ports.
For ports PB0 and PB1, the sink current is minimized to a specially-low drain, so the PB0 and PB1 are able to be used as the return-signal sources for the key matrix. Accordingly, any of the reverse-current-preventive diodes can be eliminated when these PB0 and PB1 ports are used as the key-return-signal sources. When these ports are used as ordinal output ports, it will happen any of the low-level output signal will not be output properly depending upon the circuit employed, because of the low sink current. In these cases, pull-down resistors are used in these output lines.
Under the port-operation commands like "IN", "OUT", "SOB", "RPB" commands, etc., the PA0 port coincides with the least significant bit of the registor or the operand, the PA3 coincides with the most-significant bit of them. The same applies to the Port B and Port C respectively. These exclusive output ports should be initialized using the programmes, because these ports output unstable and undefined output signals at the initial power-on condition, i.e., from "L" to "H".
The output-data contents are the same as these previous last ones when the CE terminal changes from "L" to "H" or from "H" to "L", and when the CKSTP commands are under execution. Accordingly, the initialization with programmes is needed too where required. In this set, these ports are used as those shown in the parenthesises.</td></tr>
<tr><td>(34)</td><td>PB3
(3 kHz)</td><td>PORT B</td><td>First local frequency control: In LW and MW (in 9 kHz step), if 3 is left when the receiving frequency divided by 6, it outputs "L" (low). If divisible by 6, outputs "H" (high).</td></tr>
<tr><td>(35)</td><td>PB2
(5 kHz)</td><td>PORT B</td><td>First local frequency control: In MW (in 10 kHz step) and SW, if 5 is left when the receiving frequency divided by 10, it outputs "L" (low). If divisible by 10, outputs "H" (high).</td></tr>
<tr><td>(36)</td><td>PB1</td><td>PORT B</td><td>Key matrix key sources signal.</td></tr>
<tr><td>(37)</td><td>PB0</td><td>PORT B</td><td></td></tr>
<tr><td>38
|
40</td><td>PC3
|
PC1</td><td>PORT C
(KEY-MATRIX SIGNAL-SOURCE OUTPUT)</td><td>Refer to the PORT B outlined above. All the ports of this PORT C apply to the description for the PORT B.
In this set, these ports output signals to be used as the signal sources for the key matrix.</td></tr>
<tr><td>41</td><td>NC</td><td>NO</td><td>This is a free terminal and is not connected to the internal circuits, and this terminal can be used as a junction land.</td></tr>
<tr><td>42</td><td>PC0</td><td>PORT C</td><td>Refer to description for pins 38 through 40 outlined above.</td></tr>
<tr><td>43
|
45</td><td>K3
|
K1</td><td>KEY INPUTS</td><td>4-bit exclusive input ports. These are normally used as the key-matrix input terminals. When the KIN or the KI commands executed, the conditions of these pins are read into the RAM data memories designated by the operand portion of these commands.</td></tr>
<tr><td>46</td><td>VDD</td><td></td><td>Same as pin 20.</td></tr>
<tr><td>47</td><td>K0</td><td></td><td>Same as pins 43 through 45.</td></tr>
<tr><td>48
|
53</td><td>LCD16
|
LCD11</td><td></td><td>Same as pins 1 through 10.</td></tr>
<tr><td>54</td><td>NC</td><td></td><td>Same as pin 41.</td></tr>
</table>

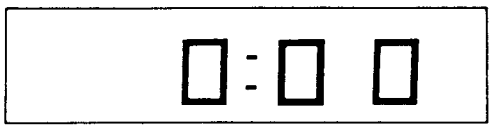
2-1-3. INITIAL-STATE SETTING

1) Initial Power-on Setting:

VDD = 0 V → 3.0 V, CE = Low → High

The power-supply is reset after performing the initial power-on setting, and the following operations are made.

a) The power-out terminal becomes in "L" (low) state, i.e., power off, and reads the initial-state setting diodes.
b) Initializes the preset-memories contents of each figures from 0 to 9 to its 150 kHz frequency.
c) Initializes the last-channel memories contents of the above each cases to its 150 kHz frequency.
d) Sets the clock and alarm time to "0:00", and resets the "second" starting.
e) And the LCD displays the following clock display.



(24-hour system)

2) Backup Condition:

CE = Low

The backup state is made when the CE terminal becomes in "L" (low) state. In the backup state, the program routines are intermittently performed to eliminate the current drain by using the "HALT" command. The operation routine is as follows.

a) The PLL is disabled.
b) All the ports are made into "L" (low) state.
c) LCD displays remains only for the clock display.

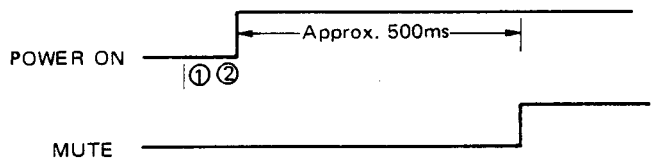
Note: The same operations are made in the radio-off state when CE is "H" (high).

2-1-4. MUTING-OUTPUT TIMINGS

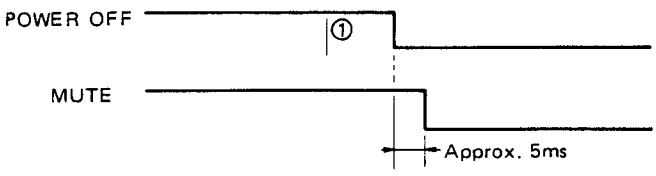
1) MUTE-OUTPUT

1 Allowance for key-on chattering (approx. 15msec).
2 Range check, N count, and PLL DATA output.
MUTE: Mute mode at low level.

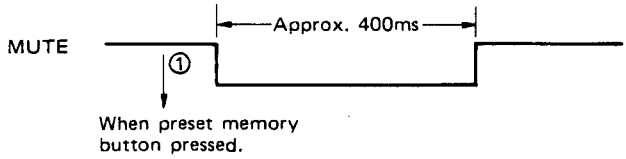
a) RADIO ON



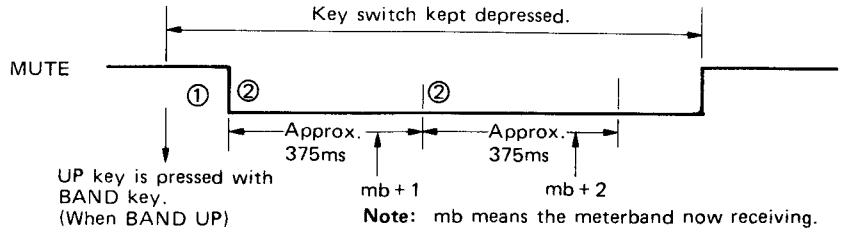
b) RADIO OFF



C) Preset selection, Direct selection, Band switching (Band UP/DOWN, manual selection).

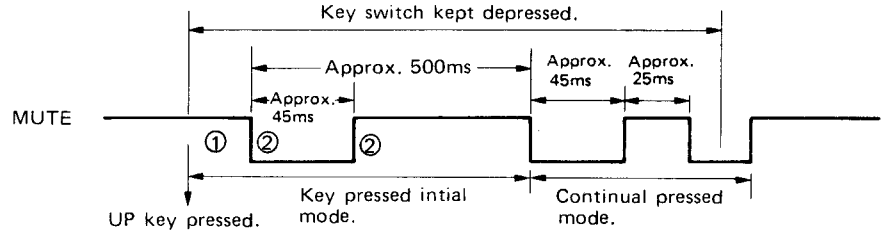


d) Continual band UP/DOWN

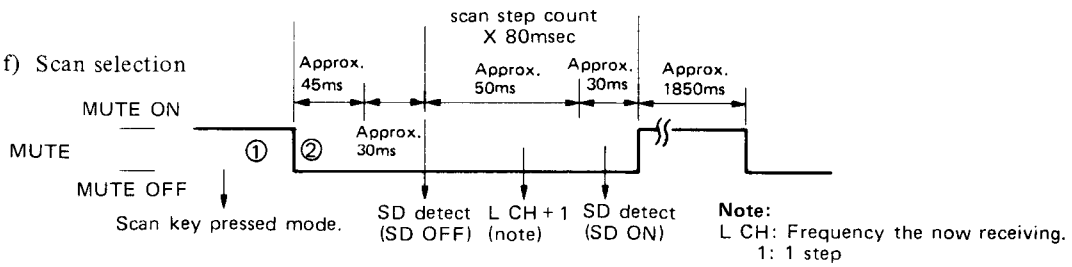


e) Continual frequency UP/DOWN (manual selection)

· In the same band

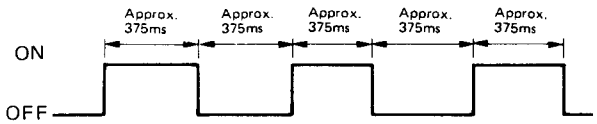


f) Scan selection

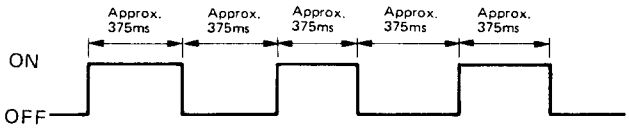


2) DISPLAY FLICKER PERIOD

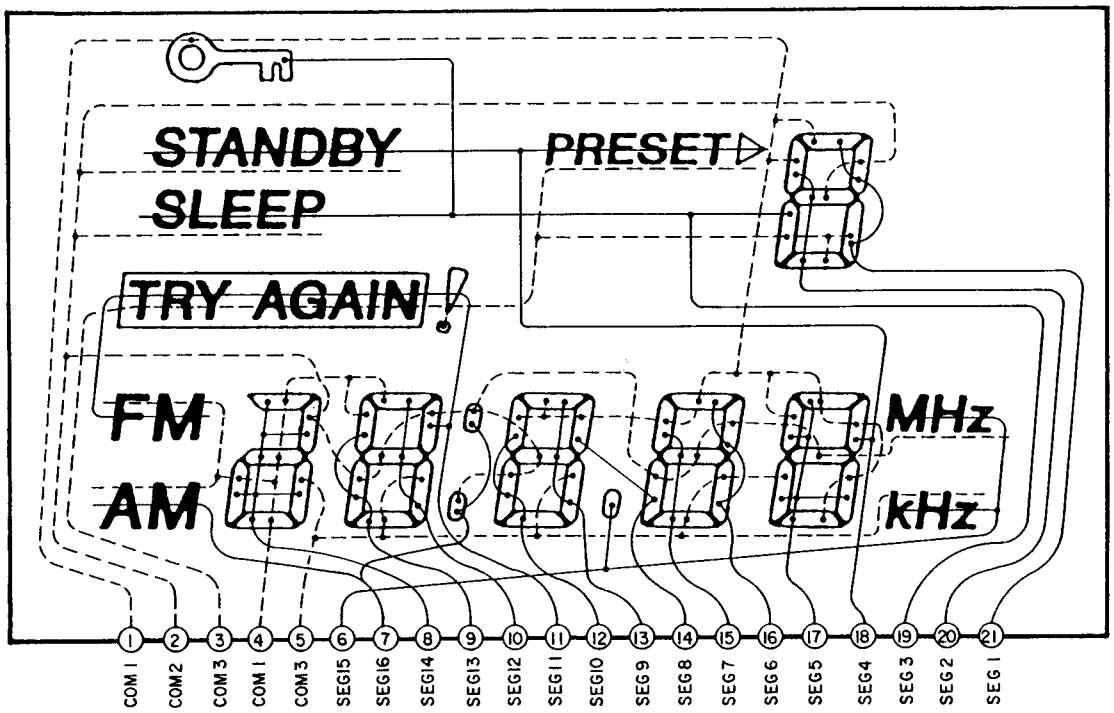
a) Time/Alarm set flicker



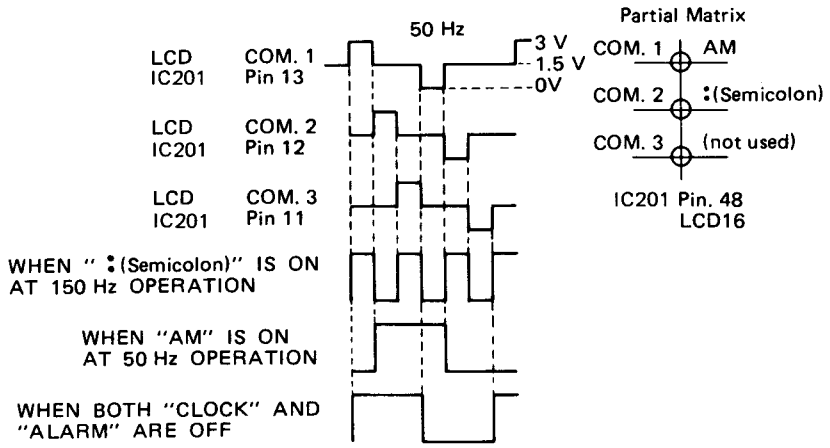
b) TRY AGAIN! Memory write ≠ flicker.



2-1-5. SEGMENTS AND COMMONS OF LIQUID-CRYSTAL DISPLAY PANEL (LCD201)


STANDBY
SLEEP
TRY AGAIN
PRESET
FM
AM
MHz
kHz
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
COM1 COM2 COM3 COM1 COM3 SEG15 SEG16 SEG14 SEG13 SEG12 SEG11 SEG10 SEG9 SEG8 SEG7 SEG6 SEG5 SEG4 SEG3 SEG2 SEG1

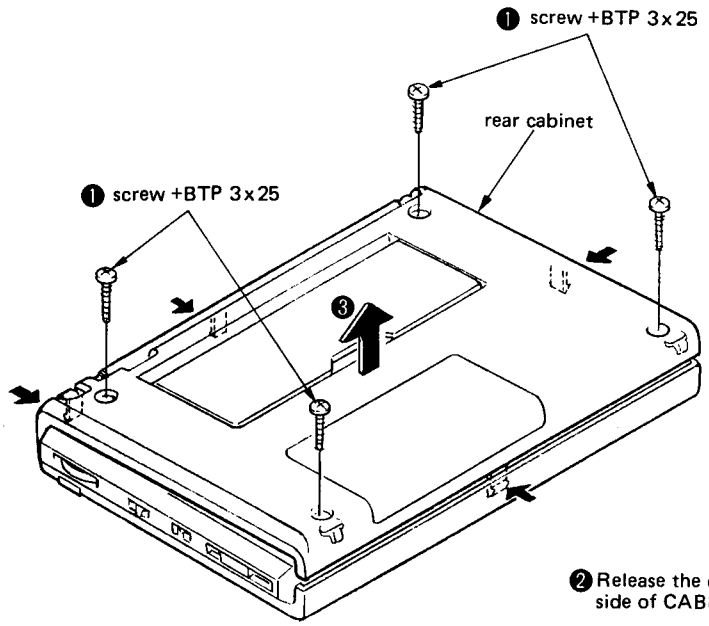
2-1-6. RELATIONSHIP OF LCD (LCD201) SEGMENTS TO LSI PINS


50 Hz
3 V
1.5 V
0V
LCD IC201 COM. 1 Pin 13
LCD IC201 COM. 2 Pin 12
LCD IC201 COM. 3 Pin 11
WHEN " : (Semicolon)" IS ON AT 150 Hz OPERATION
WHEN "AM" IS ON AT 50 Hz OPERATION
WHEN BOTH "CLOCK" AND "ALARM" ARE OFF
Partial Matrix
COM. 1 AM
COM. 2 : (Semicolon)
COM. 3 (not used)
IC201 Pin. 48 LCD16

SECTION 3
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

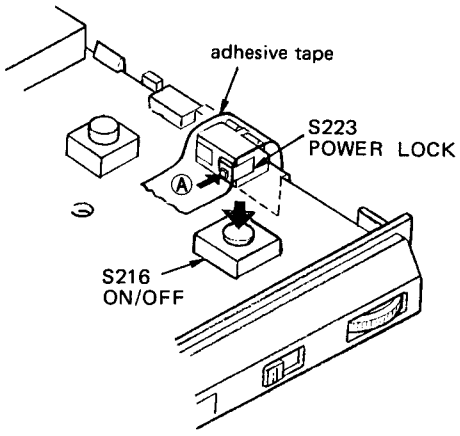
REAR CABINET

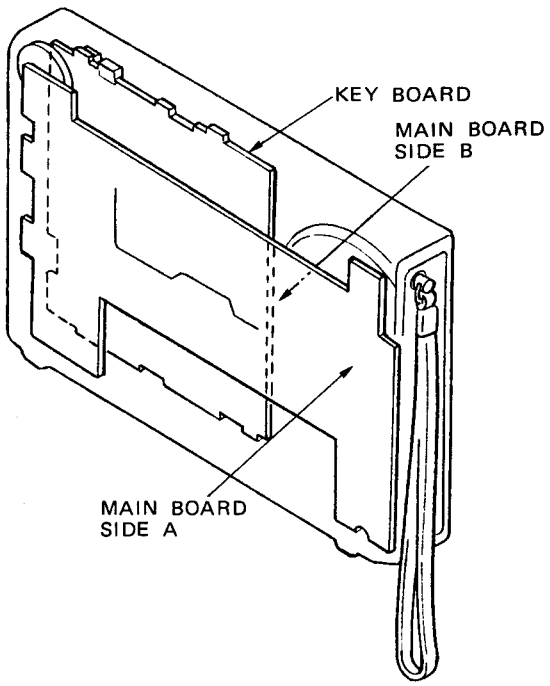


❷ Release the claws inside with pushing the side of CABINET. (◀marks)

SECTION 4
ELECTRICAL ADJUSTMENTS

Preparation

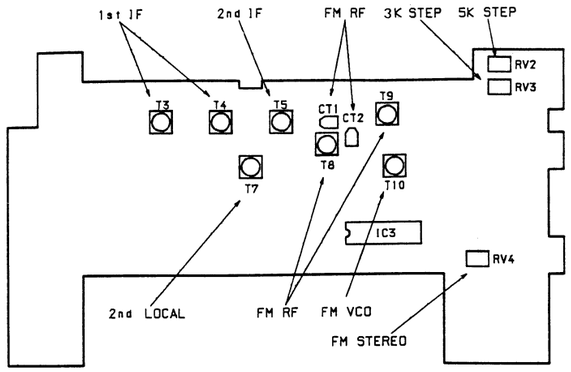




How to turn the power ON/OFF.

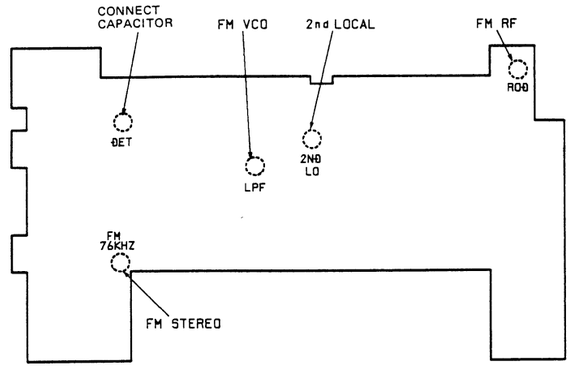
1. Press down portion Ⓐ of S223 (Power Lock) switch by adhesive tape.
2. Push the S216 (ON/OFF) switch.

Adjustment Location:



[MAIN BOARD (SIDE A)]

Test Point Location:



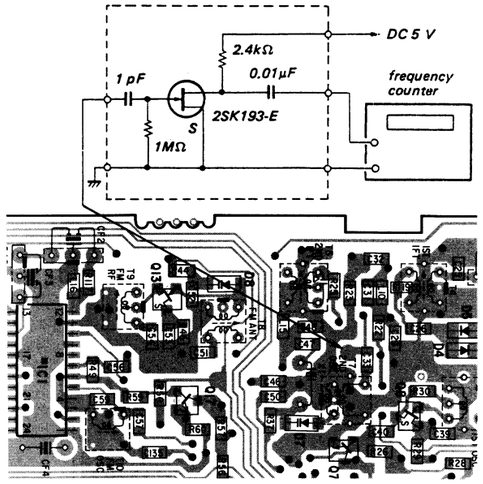
[MAIN BOARD (SIDE B)]

• AM SECTION

2nd LOCAL ADJUSTMENT/3 kHz STEP/5 kHz STEP ADJUSTMENT

Setup:

VOLUME control: as required
AM Mode: NORMAL



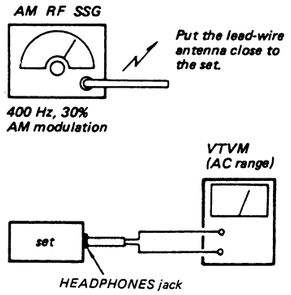
Procedure:

- 2nd LOCAL ADJUSTMENT
  1. Tune the set to AM 153 kHz.
  2. Adjust T7 to obtain a 55.38995 – 55.39005 MHz on the frequency counter.
- 3 kHz STEP ADJUSTMENT
  3. Tune the set to AM 156 kHz
  4. Adjust RV3 to obtaina 55.38695 – 55.38705 MHz on the frequency counter.
- 5 kHz STEP ADJUSTMENT
  5. Tune the set to AM 5,000 kHz.
  6. Adjust RV2 to obtain a 55.38495 – 55.38505 MHz on the frequency counter.

1st/2nd IF ADJUSTMENT

Setup:

VOLUME control: as required
AM Mode: NORMAL
SENS: DX



Procedure:

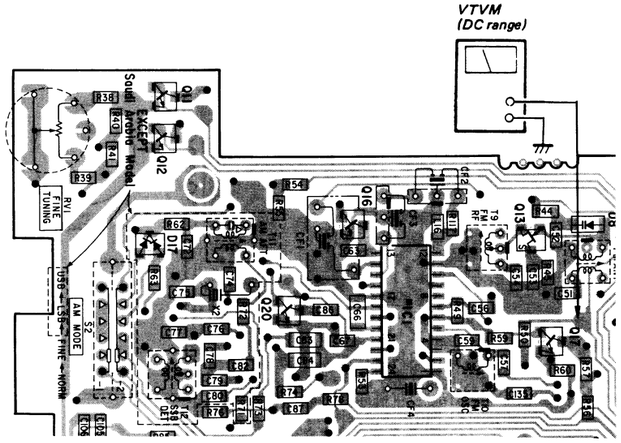
- 1st IF ADJUSTMENT
  1. Set the frequencies of the AM RF SSG and the frequency display of the set to 156 kHz.
  2. Adjust T3 and T4 to obtain a maximum reading on the VTVM.
- 2nd IF ADJUSTMENT
  1. Set the frequencies of the AM RF SSG and the frequency display of the set to 156 kHz.
  2. Adjust T5 to obtain a maximum reading on the VTVM.

• FM SECTION

FM VCO VOLTAGE ADJUSTMENT

Setup:

VOLUME control: as required

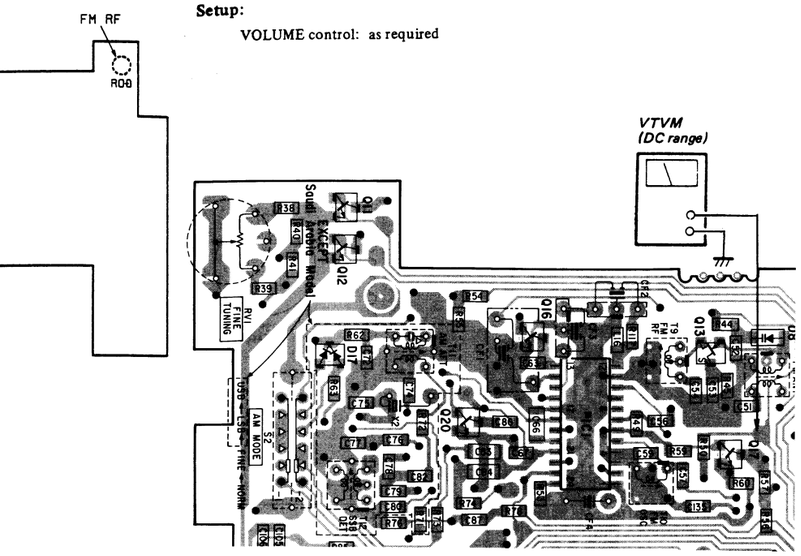


• FM SECTION

FM VCO VOLTAGE ADJUSTMENT

Setup:

VOLUME control: as required



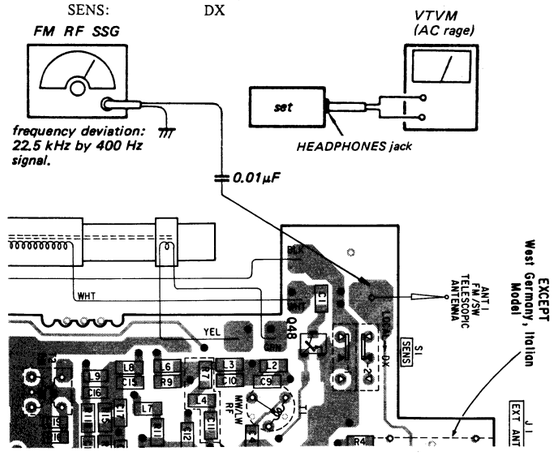
Procedure:

1. Tune the set to 108 MHz.
2. Adjust T10 to obtain a 12.4 – 12.6 V on the VTVM.

FM RF ADJUSTMENT

Setup:

VOLUME control: as required
SENS: DX



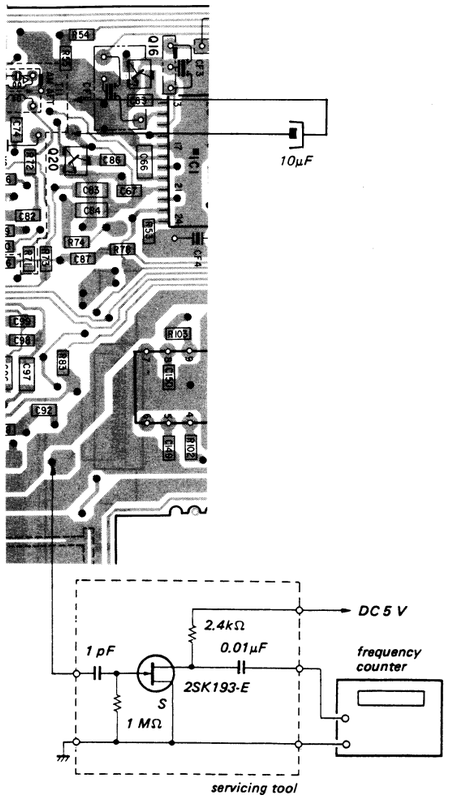
Procedure:

1. Set the frequencies of the FM RF SSG and the frequency display of the set to 108 MHz.
2. Adjust CT2 and CT1 to obtain a maximum reading on the VTVM.
3. Set the frequencies of the FM RF SSG and the frequency display of the set to 76 MHz.
4. Adjust T8 and T9 to obtain a maximum reading on the VTVM.
5. Repeart the above steps several times.

FM STEREO ADJUSTMENT

Setup:

VOLUME control: as reguired



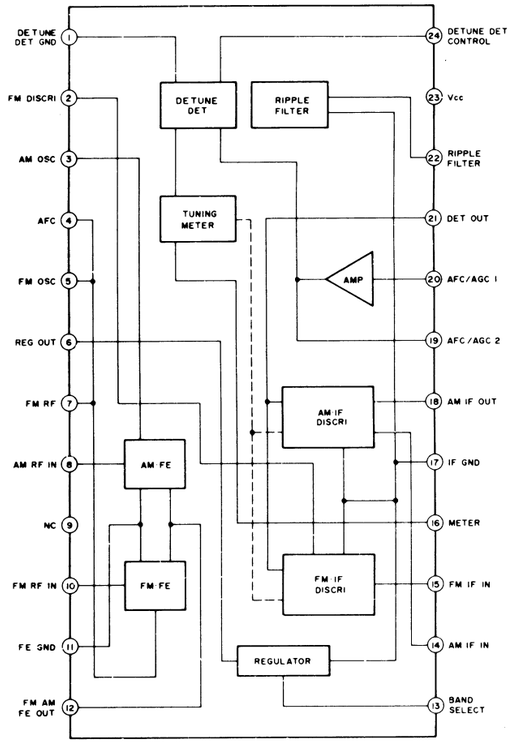
Procedure:

1. Insert HEADPHONS plug into HEADPHONS jack.
2. Connect a capacitor (10µF) between pin 21 of IC1 and GRAND.
3. Set frequency display of the set to 98 MHz.
4. Adjust RV4 to obtain 75.9 – 76.1 kHz on the frequency counter.

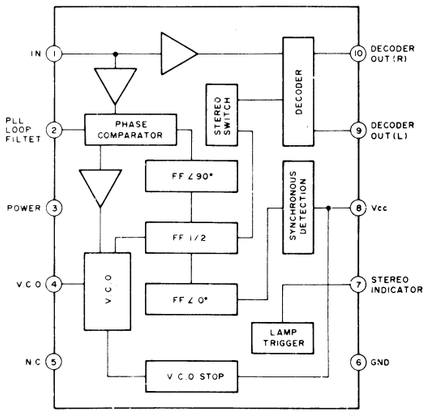
SECTION 5
DIAGRAMS

5-1. IC BLOCK DIAGRAMS

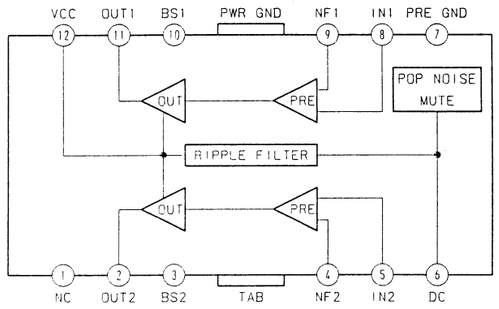
IC1 CX20111



IC2 LA3335M



IC3 LA4550



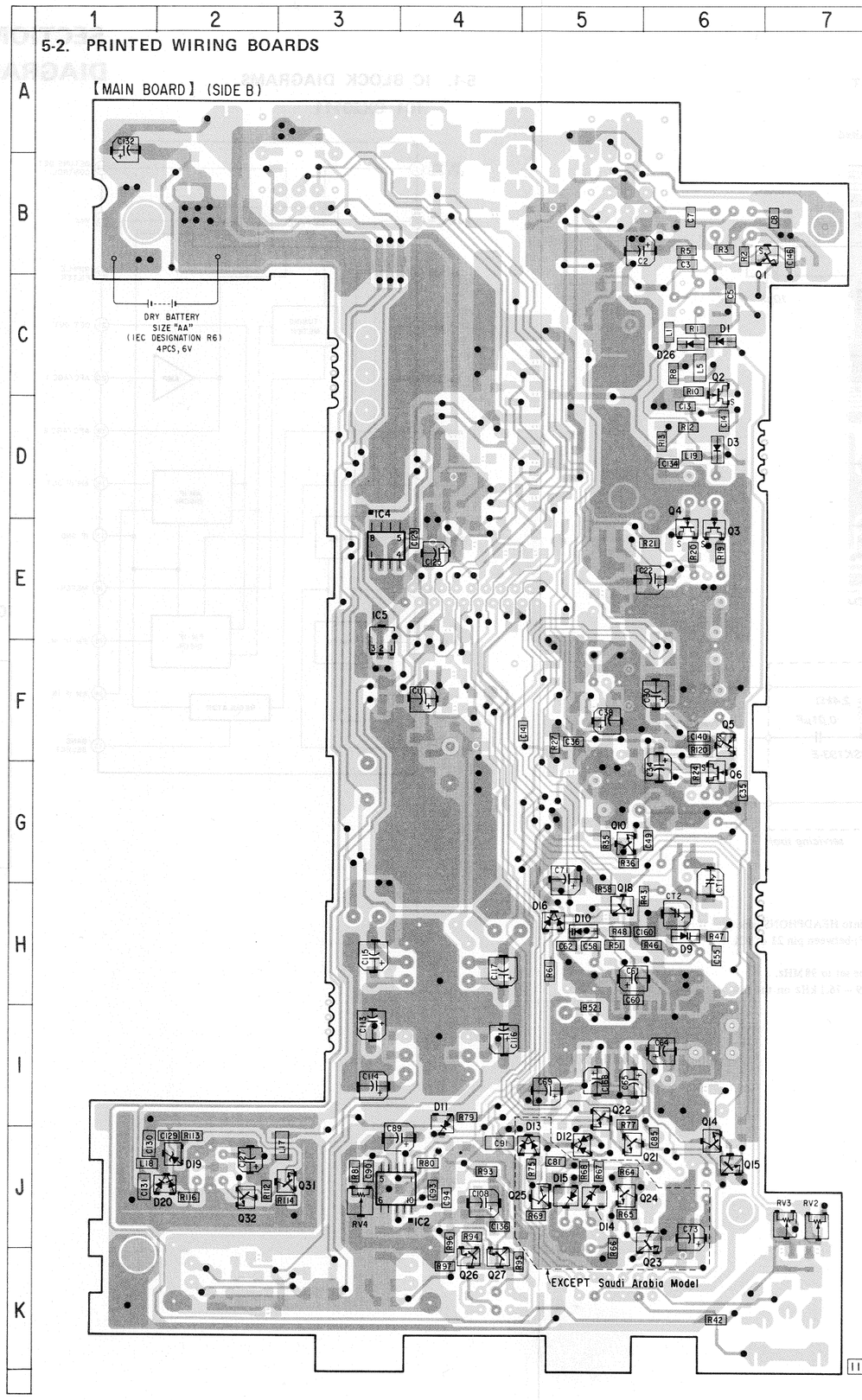
- **Semiconductor Location**

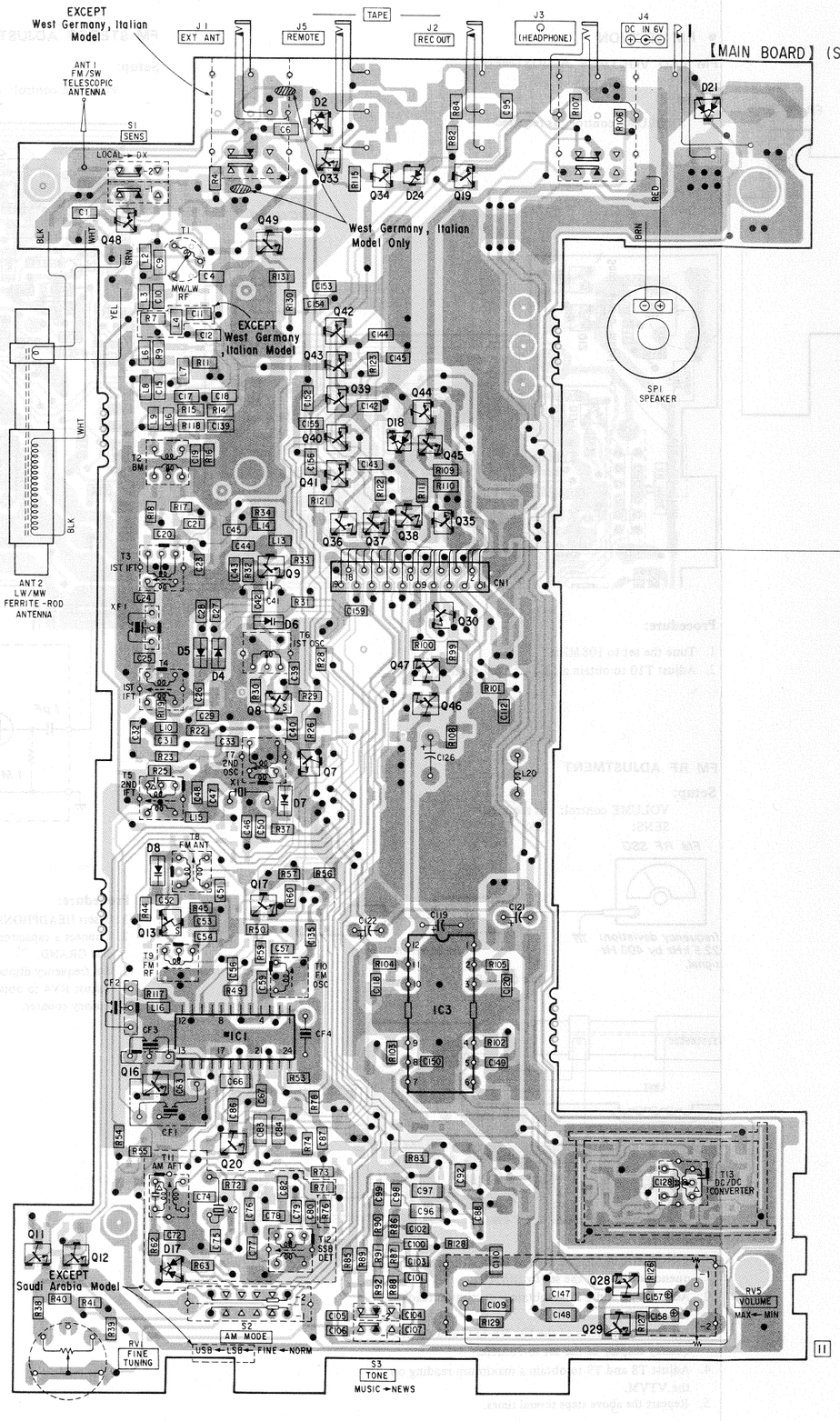
Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D1	C-6	IC1	I-9	Q25	J-4
D2	A-10	IC2	J-4	Q26	K-4
D3	D-6	IC3	H-11	Q27	K-4
D4	F-9	IC4	D-3	Q28	K-12
D5	F-9	IC5	E-3	Q29	K-12
D6	E-10	IC201	H-16	Q30	E-11
D7	G-10	IC202	K-16	Q31	J-3
D8	G-9	IC203	J-16	Q32	J-2
D9	H-6			Q33	B-10
D10	H-5	Q1	B-6	Q34	B-11
D11	I-4	Q2	C-6	Q35	E-11
D12	J-5	Q3	E-6	Q36	E-10
D13	I-5	Q4	D-6	Q37	E-11
D14	J-5	Q5	F-6	Q38	E-11
D15	J-5	Q6	G-6	Q39	D-10
D16	H-5	Q7	G-10	Q40	D-10
D17	J-9	Q8	F-10	Q41	D-10
D18	D-11	Q9	E-10	Q42	C-10
D19	J-2	Q10	G-5	Q43	C-10
D20	J-2	Q11	J-8	Q44	D-11
D21	A-13	Q12	J-8	Q45	D-11
D24	B-11	Q13	H-9	Q46	F-11
D26	C-6	Q14	I-6	Q47	F-11
D201	G-17	Q15	J-6	Q48	B-8
D202	I-16	Q16	I-9	Q49	B-10
D203	J-16	Q17	H-10	Q201	F-17
D204	I-16	Q18	H-5	Q202	G-16
D205	H-17	Q19	B-11	Q203	G-16
D206	G-15	Q20	J-9	Q204	K-20
D207	F-20	Q21	J-6	Q205	J-21
D208	G-21	Q22	I-5	Q206	I-21
D209	G-17	Q23	K-6		
		Q24	J-6		

Note:

- ○—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- ■ : parts mounted on the conductor side.
- ⊹ indicates side identified with part number.
- ● : Through hole.
- ▒ : Pattern on the side which is seen.
- ▒ : Pattern of the rear side.

5-2. PRINTED WIRING BOARDS





【MAIN BOARD】 (SIDE A)

EXCEPT West Germany, Italian Model

ANT-1 FM/SW TELESCOPIC ANTENNA

ANT 2 LW/MW FERRITE-ROD ANTENNA

West Germany, Italian Model Only

EXCEPT West Germany, Italian Model

SP1 SPEAKER

EXCEPT Saudi Arabia Model

【KEY BOARD】

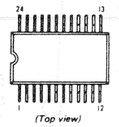
Saudi Arabia, Italian Model

Saudi Arabia, Italian Model

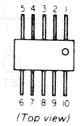
French, West Germany, AEP TYPE 2, Saudi Arabia, Italian Model

● Semiconductor Lead Layouts

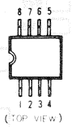
CX20111-L



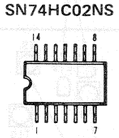
LA3335M



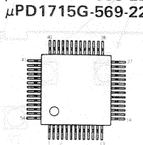
LA5003M



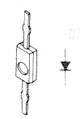
SN74HC00NS
SN74HC02NS



μPD1715G-558-22
μPD1715G-569-22

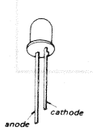


ISS279
IT33-08

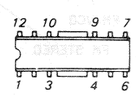


GL-1PR02

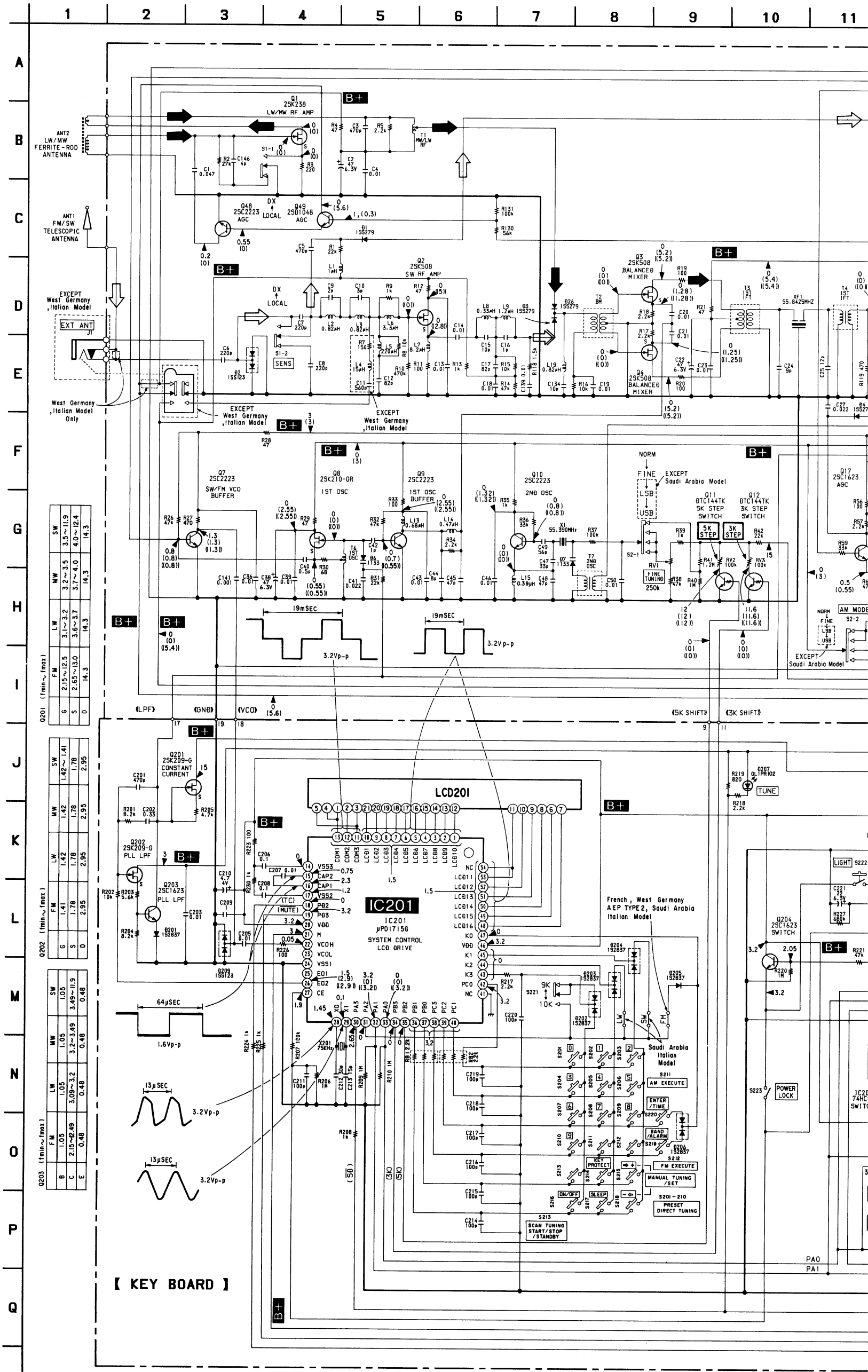
SLP-38IF-51-AB



LA4550



5-3. SCHEMATIC DIAGRAM • See page 17 for IC Block Diagrams.



Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- △ : internal component.
- ▭ : adjustment for repair.
- Total current is measured with no cassette installed.
- Power voltage is 6V dc and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under deturned conditions.
  no mark : FM
  ( ) : MW/LW
  (( )) : SW
- Voltages are taken with a VOM. (input impedance 10 MΩ) Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
  ➡ : MW/LW
  ⇨ : SW

Q201 (fmin.~fmax.)

	FM	MW	LW	SW
G	2.15~12.5	3.2~3.5	3.1~3.2	3.5~11.9
S	2.65~13.0	3.7~4.0	3.6~3.7	4.0~12.4
D	14.3	14.3	14.3	14.3

Q202 (fmin.~fmax.)

	FM	MW	LW	SW
G	1.41	1.42	1.42	1.42~1.41
S	1.78	1.78	1.78	1.78
D	2.95	2.95	2.95	2.95

Q203 (fmin.~fmax.)

	FM	LW	SW
B	1.05	1.05	1.05
C	2.15~2.49	3.09~3.2	3.2~3.49
E	0.48	0.48	0.48

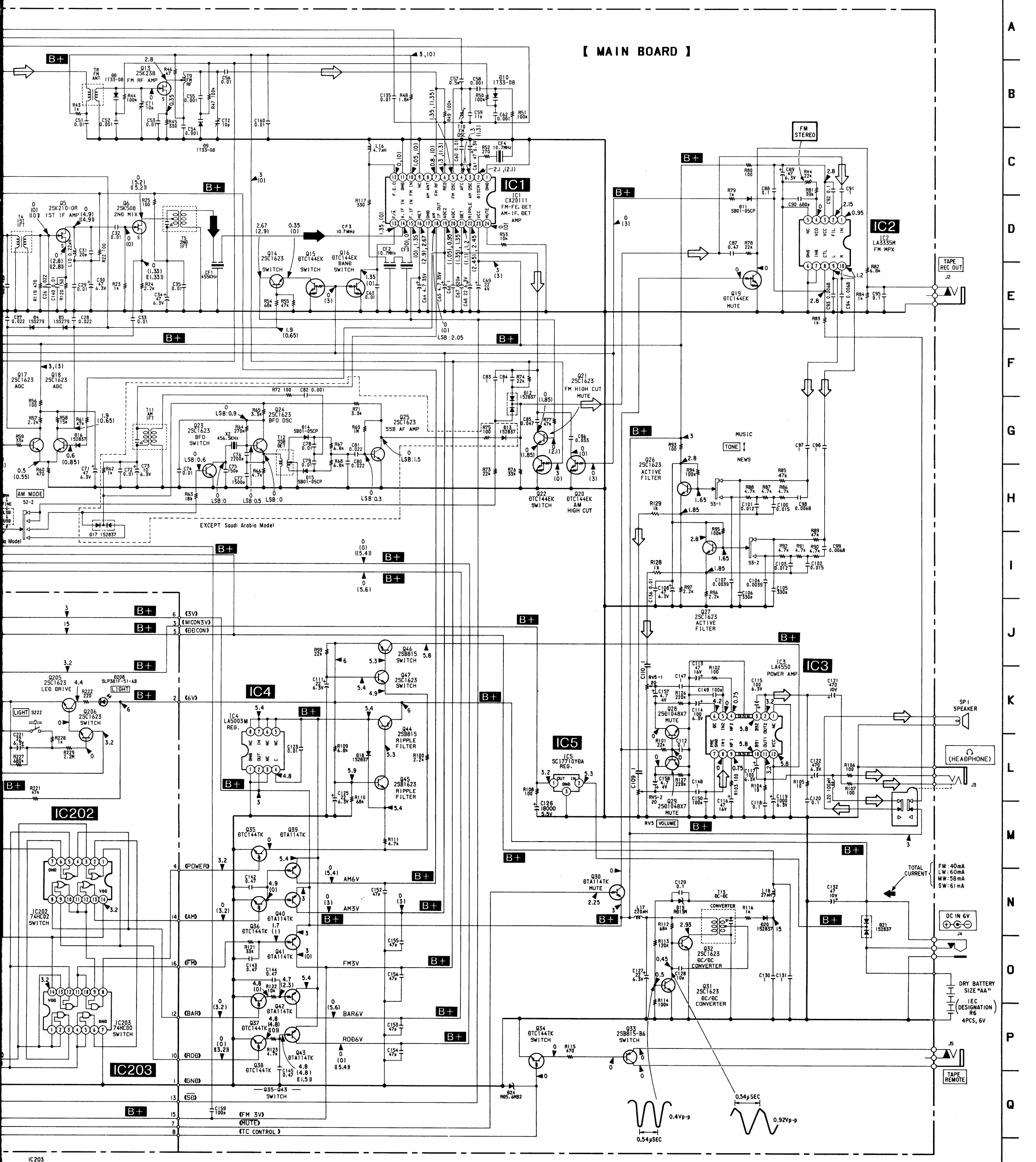
IC202

PIN	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭
FM	0	0	3.2	0	3.2	0	0	0	0	3.2	3.2	3.2	0	3.2
MW/LW	0	3.2	3.2	3.2	0	0	0	3.2	0	0	0	3.2	3.2	3.2
SW	3.2	0	0	0	3.2	3.2	0	0	3.2	0	0	0	3.2	3.2

IC203

PIN
FM
MW/LW
SW

【 MAIN BOARD 】



IC203

④	PIN	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭
3.2	FM	3.2	3.2	0	3.2	3.2	0	0	3.2	3.2	0	0	3.2	0	3.2
3.2	MW/LW	3.2	3.2	0	0	0	3.2	0	3.2	0	3.2	3.2	0	3.2	3.2
3.2	SW	0	0	3.2	3.2	3.2	0	0	3.2	0	3.2	3.2	3.2	0	3.2

SECTION 6
EXPLODED VIEWS

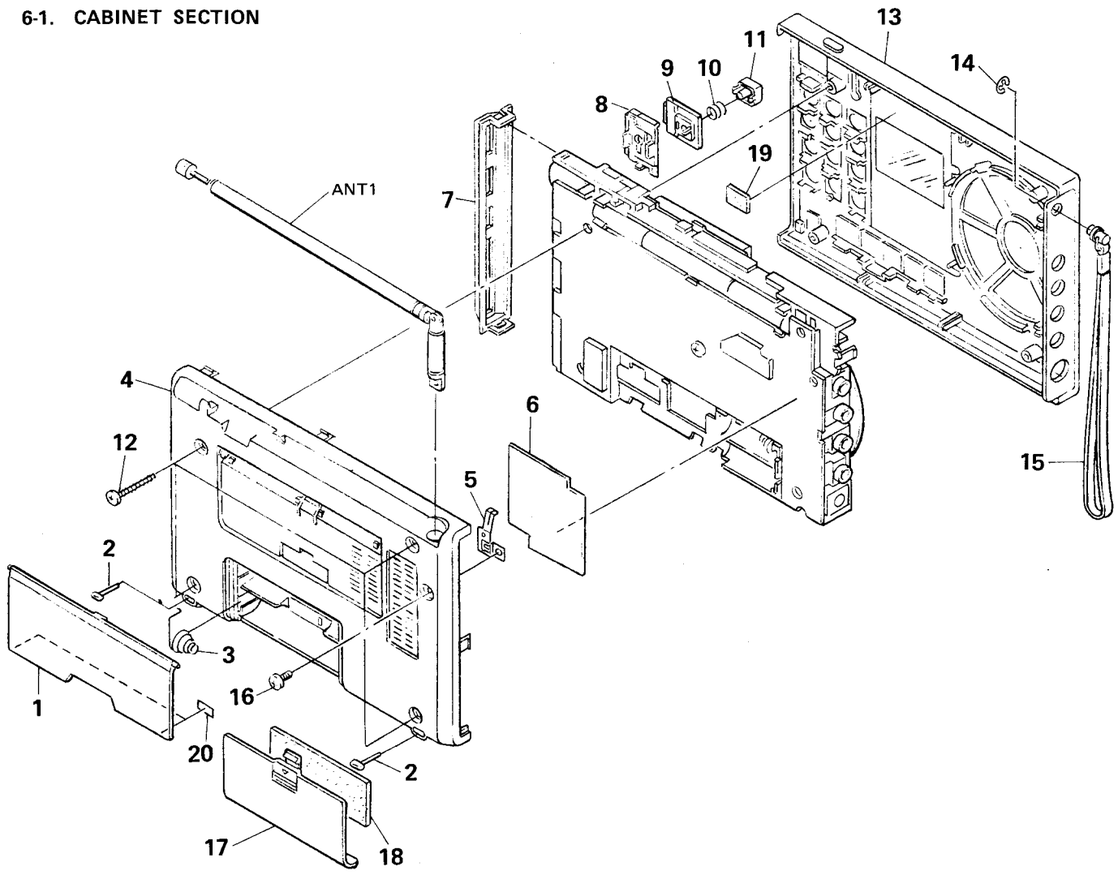
NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
  Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ Cabinet's Color ↑ Parts' Color

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

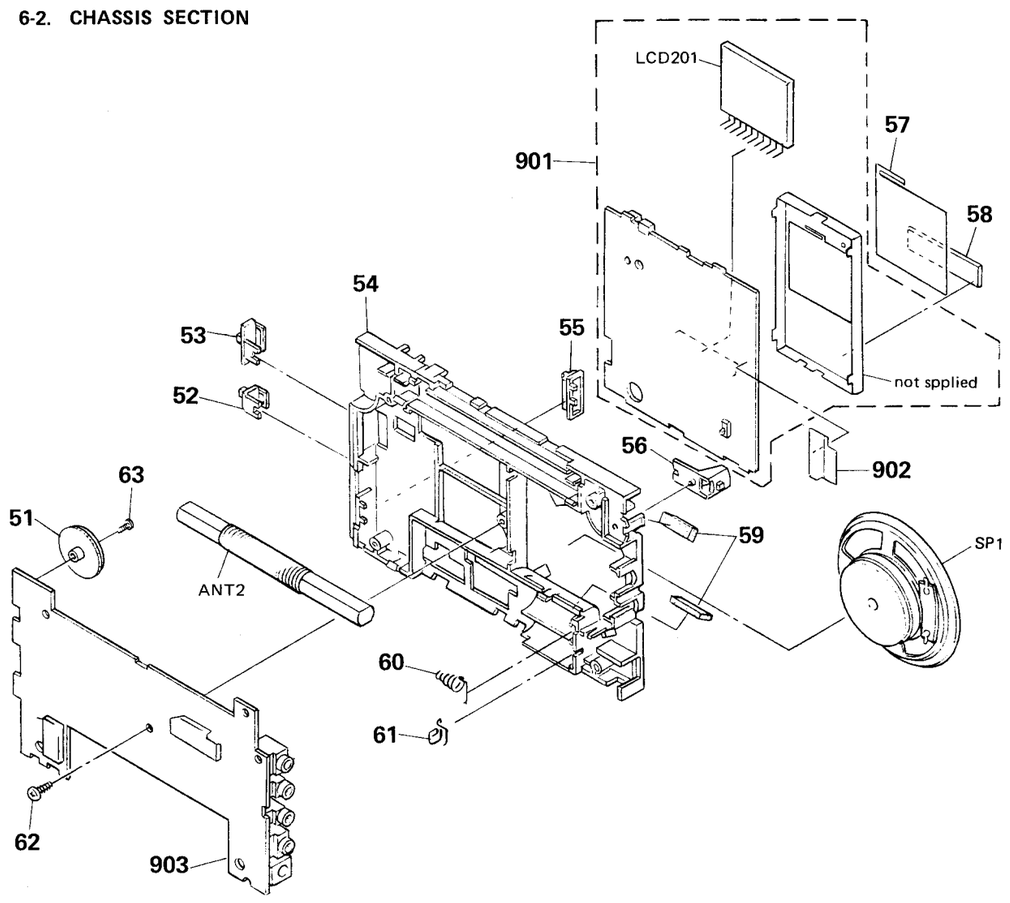
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifé.

6-1. CABINET SECTION



No.	Part No.	Description	Remarks
1	3-893-839-01	STAND	
2	3-893-846-01	FOOT, RUBBER	
3	3-893-845-01	TERMINAL (PLUS MINUS), BATTERY	
4	3-893-859-01	CABINET (REAR)	
5	3-893-840-01	PLATE (ANTENNA), CONTACT	
6	9-911-838-XX	SHEET (A)	
7	3-893-847-01	COVER	
8	3-893-836-01	RETAINER	
9	3-893-835-01	KNOB (LOCK)	
10	3-893-862-01	SPRING, COMPRESSION	
11	3-893-829-01	BUTTON (POWER)	
12	7-685-552-19	SCREW +BTP 3X25 TYPE2 N-S	
13	A-3641-614-A	(West Germany)...CABINET (FRONT) ASSY	
	A-3641-615-A	(EXCEPT West Germany) ...CABINET (FRONT) ASSY	
14	7-624-104-04	STOP RING 2.0, TYPE -E	
15	3-881-938-00	STRAP, HAND	
16	4-924-242-11	SCREW (M3X6), FLAT HEAD	
17	3-893-838-01	LID, BATTERY CASE	
18	9-911-844-XX	CUSHION (BATTERY CASE LID)	
19	9-911-815-01	CUSHION, DRUM	
20	*3-893-875-01	CUSHION (D)	
ANT1	1-501-376-11	ANTENNA, TELESCOPIC	

6-2. CHASSIS SECTION



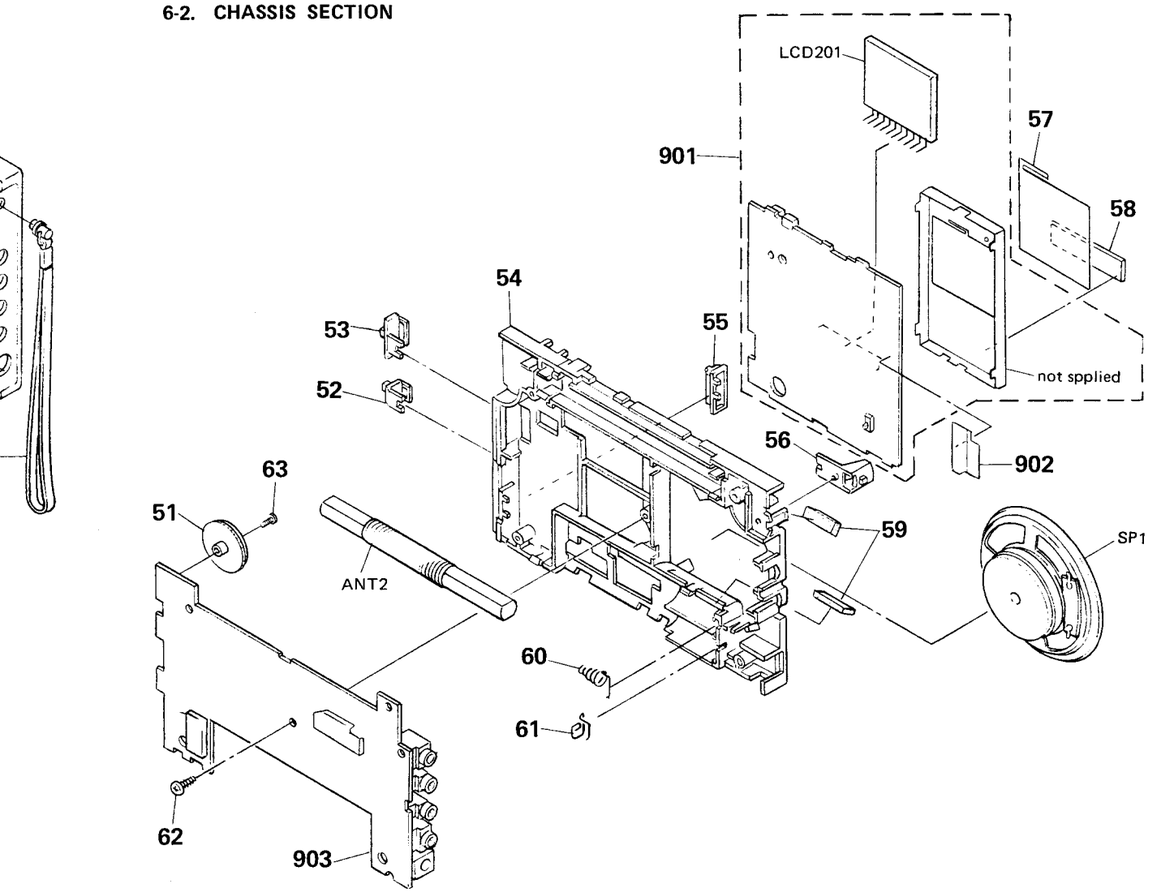
No.	Part No.	Description	Remarks
51	3-893-830-01	KNOB (FINE TUNING)	
52	3-893-832-01	KNOB (TONE)	
53	3-893-831-01	KNOB (MODE)	
54	*3-893-858-01	CHASSIS	
55	3-893-834-01	KNOB (VOL)	
56	3-893-833-01	KNOB (SENS)	
57	*3-893-863-01	SHEET (C)	
58	3-893-865-01	CUSHION (A)	
59	9-911-844-XX	CUSHION (B)	
60	3-893-844-01	TERMINAL (MINUS), BATTERY	
61	3-893-843-01	TERMINAL (PLUS), BATTERY	
62	7-685-646-79	SCREW +BTP 3X8 TYPE2 N-S	
63	3-703-816-12	SCREW (M1.4X4.0), SPECIAL HEAD	
901	*A-3679-169-A	MOUNTED PCB, KEY	
902	1-633-097-11	PC BOARD, FLEXIBLE	
903	*A-3615-341-A	(West Germany).....MOUNTED PCB, MAIN	
	*A-3615-342-A	(EXCEPT West Germany)..MOUNTED PCB, MAIN	
ANT2	1-402-479-11	ANTENNA, FERRITE-ROD (LW/MW)	
LCD201	1-808-920-11	DISPLAY PANEL, LIQUID CRYSTAL	
SP1	1-502-631-00	SPEAKER	

NOTE:

- Due to stan
  list may be
  the diagram
- Items mark
  are seldom
  delay shoul
  items.
- If there are
  such as a
  circuit parts
  resistors in

Ref.No.	Part
901	*A-36
902	1-63
903	*A-36
	*A-36
ANT1	1-50
ANT2	1-40
C1	1-16
C2	1-12
C3	1-16
C4	1-16
C5	1-16
C6	1-16
C7	1-16
C8	1-16
C9	1-16
C10	1-16
C11	1-16
C12	1-16
C13	1-16
C14	1-16
C15	1-16
C16	1-16
C17	1-16
C18	1-16
C19	1-16
C20	1-16
C21	1-16
C22	1-12
C23	1-16
C24	1-16
C25	1-16
C26	1-16
C27	1-16
C28	1-16
C29	1-16
C30	1-12
C31	1-16
C32	1-16
C33	1-16
C34	1-12
C35	1-16
C36	1-16
C38	1-12
C39	1-16

6-2. CHASSIS SECTION



Remarks	No.	Part No.	Description	Remarks
ASSY	51	3-893-830-01	KNOB (FINE TUNING)	
ASSY	52	3-893-832-01	KNOB (TONE)	
	53	3-893-831-01	KNOB (MODE)	
	54	*3-893-858-01	CHASSIS	
	55	3-893-834-01	KNOB (VOL)	
	56	3-893-833-01	KNOB (SENS)	
	57	*3-893-863-01	SHEET (C)	
	58	3-893-865-01	CUSHION (A)	
	59	9-911-844-XX	CUSHION (B)	
	60	3-893-844-01	TERMINAL (MINUS), BATTERY	
	61	3-893-843-01	TERMINAL (PLUS), BATTERY	
	62	7-685-646-79	SCREW +BTP 3X8 TYPE2 N-S	
	63	3-703-816-12	SCREW (M1.4X4.0), SPECIAL HEAD	
	901	*A-3679-169-A	MOUNTED PCB, KEY	
	902	1-633-097-11	PC BOARD, FLEXIBLE	
	903	*A-3615-341-A	(West Germany).....MOUNTED PCB, MAIN	
		*A-3615-342-A	(EXCEPT West Germany)..MOUNTED PCB, MAIN	
	ANT2	1-402-479-11	ANTENNA, FERRITE-ROD (LW/MW)	
	LCD201	1-808-920-11	DISPLAY PANEL, LIQUID CRYSTAL	
	SP1	1-502-631-00	SPEAKER	

SECTION 7
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description		
901	*A-3679-169-A	MOUNTED PCB, KEY		
902	1-633-097-11	PC BOARD, FLEXIBLE		
903	*A-3615-341-A	(West Germany).....MOUNTED PCB, MAIN		
	*A-3615-342-A	(EXCEPT West Germany)..MOUNTED PCB, MAIN		
ANT1	1-501-376-11	ANTENNA, TELESCOPIC		
ANT2	1-402-479-11	ANTENNA, FERRITE-ROD (LW/MW)		
C1	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C2	1-126-205-11	ELECT CHIP 47MF	20%	6.3V
C3	1-163-133-00	CERAMIC CHIP 470PF	5%	50V
C4	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C5	1-163-133-00	CERAMIC CHIP 470PF	5%	50V
C6	1-163-125-00	CERAMIC CHIP 220PF	5%	50V
C7	1-163-125-00	CERAMIC CHIP 220PF	5%	50V
C8	1-163-125-00	CERAMIC CHIP 220PF	5%	50V
C9	1-163-085-00	CERAMIC CHIP 2PF	0.25PF	50V
C10	1-163-086-00	CERAMIC CHIP 3PF	0.25PF	50V
C11	1-163-135-00	(EXCEPT West Germany,Italian) ...CERAMIC CHIP 560PF	5%	50V
C12	1-163-115-00	CERAMIC CHIP 82PF	5%	50V
C13	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C14	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C15	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C16	1-163-083-00	CERAMIC CHIP 1PF	0.25PF	50V
C17	1-163-115-00	CERAMIC CHIP 82PF	5%	50V
C18	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C19	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C20	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C21	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C22	1-126-205-11	ELECT CHIP 47MF	20%	6.3V
C23	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C24	1-163-092-00	CERAMIC CHIP 9PF	0.25PF	50V
C25	1-163-095-00	CERAMIC CHIP 12PF	5%	50V
C26	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C27	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C28	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C29	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C30	1-126-205-11	ELECT CHIP 47MF	20%	6.3V
C31	1-163-100-00	CERAMIC CHIP 20PF	5%	50V
C32	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C33	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C34	1-126-205-11	ELECT CHIP 47MF	20%	6.3V
C35	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C36	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C38	1-126-205-11	ELECT CHIP 47MF	20%	6.3V
C39	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C40	1-163-082-00	CERAMIC CHIP 0.5PF	0.25PF	50V
C41	1-161-055-00	CERAMIC 0.022MF	10%	25V
C42	1-163-083-00	CERAMIC CHIP 1PF	0.25PF	50V
C43	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C44	1-163-091-00	CERAMIC CHIP 8PF	0.25PF	50V
C45	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C46	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C47	1-163-105-00	CERAMIC CHIP 33PF	5%	50V
C48	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C49	1-163-111-00	CERAMIC CHIP 56PF	5%	50V
C50	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C51	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C52	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C53	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C54	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C55	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C56	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C57	1-163-082-00	CERAMIC CHIP 0.5PF	0.25PF	50V
C58	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C59	1-163-094-00	CERAMIC CHIP 11PF	5%	50V
C60	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C61	1-126-205-11	ELECT CHIP 47MF	20%	6.3V
C62	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C63	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C64	1-126-603-11	ELECT CHIP 4.7MF	20%	35V
C65	1-126-603-11	ELECT CHIP 4.7MF	20%	35V
C66	1-162-638-11	CERAMIC CHIP 1MF		16V
C67	1-163-139-00	CERAMIC CHIP 820PF	5%	50V
C68	1-124-778-00	ELECT CHIP 22MF	20%	6.3V
C69	1-126-246-11	ELECT CHIP 220MF	20%	4V
C71	1-126-205-11	ELECT CHIP 47MF	20%	6.3V
C72	1-164-232-11	(EXCEPT Saudi Arabia) ...CERAMIC CHIP 0.01MF	10%	50V
C73	1-124-779-00	(EXCEPT Saudi Arabia) ...ELECT CHIP 10MF	20%	16V
C74	1-164-232-11	(EXCEPT Saudi Arabia) ...CERAMIC CHIP 0.01MF	10%	50V
C75	1-163-121-00	(EXCEPT Saudi Arabia) ...CERAMIC CHIP 150PF	5%	50V
C76	1-164-161-11	(EXCEPT Saudi Arabia) ...CERAMIC CHIP 0.0022MF	10%	50V
C77	1-163-011-11	(EXCEPT Saudi Arabia) ...CERAMIC CHIP 0.0015MF	10%	50V
C78	1-164-232-11	(EXCEPT Saudi Arabia) ...CERAMIC CHIP 0.01MF	10%	50V
C79	1-164-232-11	(EXCEPT Saudi Arabia) ...CERAMIC CHIP 0.01MF	10%	50V

Ref.No.	Part No.	Description		
C80	1-163-037-11	(EXCEPT Saudi Arabia) ...CERAMIC CHIP 0.022MF	10%	25V
C81	1-163-037-11	(EXCEPT Saudi Arabia) ...CERAMIC CHIP 0.022MF	10%	25V
C82	1-163-009-11	(EXCEPT Saudi Arabia) ...CERAMIC CHIP 0.001MF	10%	50V
C83	1-162-638-11	CERAMIC CHIP 1MF		16V
C84	1-162-638-11	CERAMIC CHIP 1MF		16V
C85	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C86	1-163-989-11	CERAMIC CHIP 0.033MF	10%	25V
C87	1-164-005-11	CERAMIC CHIP 0.47MF		25V
C88	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C89	1-126-205-11	ELECT CHIP 47MF	20%	6.3V
C90	1-163-137-00	CERAMIC CHIP 680PF	5%	50V
C91	1-162-638-11	CERAMIC CHIP 1MF		16V
C92	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C93	1-163-019-00	CERAMIC CHIP 0.0068MF	10%	50V
C94	1-163-019-00	CERAMIC CHIP 0.0068MF	10%	50V
C95	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C96	1-162-638-11	CERAMIC CHIP 1MF		16V
C97	1-162-638-11	CERAMIC CHIP 1MF		16V
C98	1-163-019-00	CERAMIC CHIP 0.0068MF	10%	50V
C99	1-163-019-00	CERAMIC CHIP 0.0068MF	10%	50V
C100	1-163-023-00	CERAMIC CHIP 0.015MF	10%	50V
C101	1-163-022-00	CERAMIC CHIP 0.012MF	10%	50V
C102	1-163-023-00	CERAMIC CHIP 0.015MF	10%	50V
C103	1-163-022-00	CERAMIC CHIP 0.012MF	10%	50V
C104	1-163-016-00	CERAMIC CHIP 0.0039MF	10%	50V
C105	1-163-129-00	CERAMIC CHIP 330PF	5%	50V
C106	1-163-129-00	CERAMIC CHIP 330PF	5%	50V
C107	1-163-016-00	CERAMIC CHIP 0.0039MF	10%	50V
C108	1-126-205-11	ELECT CHIP 47MF	20%	6.3V
C109	1-162-638-11	CERAMIC CHIP 1MF		16V
C110	1-162-638-11	CERAMIC CHIP 1MF		16V
C111	1-124-778-00	ELECT CHIP 22MF	20%	6.3V
C112	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C113	1-126-204-11	ELECT CHIP 47MF	20%	16V
C114	1-126-206-11	ELECT CHIP 100MF	20%	6.3V
C115	1-126-206-11	ELECT CHIP 100MF	20%	6.3V
C116	1-126-204-11	ELECT CHIP 47MF	20%	16V
C117	1-126-206-11	ELECT CHIP 100MF	20%	6.3V
C118	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C119	1-124-471-00	ELECT 1000MF	20%	6.3V
C120	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V
C121	1-124-472-11	ELECT 470MF	20%	10V
C122	1-124-472-11	ELECT 470MF	20%	10V
C123	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C125	1-124-778-00	ELECT CHIP 22MF	20%	6.3V
C126	1-125-603-11	DOUBLE LAYERS 0.08F		5.5V
C127	1-124-778-00	ELECT CHIP 22MF	20%	6.3V
C128	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C129	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C130	1-162-638-11	CERAMIC CHIP 1MF		16V
C131	1-162-638-11	CERAMIC CHIP 1MF		16V
C132	1-126-205-11	ELECT CHIP 47MF	20%	6.3V
C134	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C135	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C136	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C139	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C140	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C141	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V
C142	1-164-005-11	CERAMIC CHIP 0.47MF		25V
C143	1-164-005-11	CERAMIC CHIP 0.47MF		25V
C144	1-164-005-11	CERAMIC CHIP 0.47MF		25V
C145	1-164-005-11	CERAMIC CHIP 0.47MF		25V
C146	1-163-087-00	CERAMIC CHIP 4PF	0.25PF	50V
C147	1-162-638-11	CERAMIC CHIP 1MF		16V
C148	1-162-638-11	CERAMIC CHIP 1MF		16V
C149	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C150	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C152	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C153	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C154	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C155	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C156	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C157	1-135-183-11	TANTAL. CHIP 4.7MF	20%	4V
C158	1-135-183-11	TANTAL. CHIP 4.7MF	20%	4V
C159	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C160	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C201	1-163-133-00	CERAMIC CHIP 470PF	5%	50V
C202	1-130-774-00	FILM 0.33MF	10%	63V
C203	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C205	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C206	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C207	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C208	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C209	1-162-638-11	CERAMIC CHIP 1MF		16V
C210	1-135-151-21	TANTAL. CHIP 4.7MF	20%	4V
C211	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C212	1-163-104-00	CERAMIC CHIP 30PF	5%	50V
C213	1-163-097-00	CERAMIC CHIP 15PF	5%	50V
C214	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C215	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C216	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C217	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C218	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C219	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C220	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C221	1-124-778-00	ELECT CHIP 22MF	20%	6.3V
CF1	1-577-707-11	FILTER, CERAMIC		
CF2	1-577-658-11	FILTER, CERAMIC		
CF3	1-577-658-11	FILTER, CERAMIC		
CF4	1-577-658-11	FILTER, CERAMIC		
CN1	*1-568-398-11	CONNECTOR, FPC (DIP TYPE) 19P		
CT1	1-141-327-11	CAP, VAR, TRIMMER (CHIP TYPE) 10PF		
CT2	1-141-327-11	CAP, VAR, TRIMMER (CHIP TYPE) 10PF		
D1	8-719-123-79	DIODE 1SS279		
D2	8-719-800-76	DIODE 1SS226		
D3	8-719-123-79	DIODE 1SS279		
D4	8-719-123-79	DIODE 1SS279		
D5	8-719-123-79	DIODE 1SS279		
D6	8-713-300-57	DIODE 1T33-08		
D7	8-713-300-57	DIODE 1T33-08		
D8	8-713-300-57	DIODE 1T33-08		
D9	8-713-300-57	DIODE 1T33-08		
D10	8-713-300-57	DIODE 1T33-08		
D11	8-719-938-72	DIODE SB01-05CP		
D12	8-719-400-18	DIODE MA152WK		
D13	8-719-400-18	(EXCEPT Saudi Arabia)...DIODE MA152WK		
D14	8-719-938-72	(EXCEPT Saudi Arabia)...DIODE SB01-05CP		
D15	8-719-938-72	(EXCEPT Saudi Arabia)...DIODE SB01-05CP		
D16	8-719-400-18	DIODE MA152WK		
D17	8-719-400-18	(EXCEPT Saudi Arabia)...DIODE MA152WK		
D18	8-719-400-18	DIODE MA152WK		
D19	8-719-106-80	DIODE RD13M-B2		
D20	8-719-400-18	DIODE MA152WK		
D21	8-719-400-18	DIODE MA152WK		
D24	8-719-105-91	DIODE RD5.6M-B2		
D26	8-719-123-79	DIODE MA152WK		
D201	8-719-400-18	DIODE MA152WK		
D202	8-719-400-18	DIODE MA152WK		
D203	8-719-400-18	DIODE MA152WK		
D204	8-719-400-18	DIODE MA152WK		
D205	8-719-400-18	DIODE MA152WK		
D206	8-719-400-18	DIODE MA152WK		
D207	8-719-918-65	DIODE GL1PR111		
D208	8-719-980-90	DIODE SLP-381F-51-AB		
D209	8-719-800-76	DIODE 1SS226		
IC1	8-752-011-10	IC CX20111-L		
IC2	8-759-804-98	IC LA3335M		
IC3	8-759-802-46	IC LA4550		
IC4	8-759-801-15	IC LA5003M		
IC5	8-759-990-47	IC SCI7710UDA		
IC201	8-759-142-35	(EXCEPT Italian)...IC UPD1715G-558-22		
IC201	8-759-145-03	(Italian).....IC UPD1715G-569-22		
IC202	8-759-925-72	IC SN74HC02NS		
IC203	8-759-927-46	IC SN74HC00NS		
J1	1-569-187-11	(EXCEPT West Germany,Italian) ...JACK (EXT ANT)		
J2	1-563-330-11	JACK (TAPE/REC OUT)		
J3	1-507-806-00	JACK 1P (HEADPHONES)		
J4	1-507-954-11	JACK, EXTERNAL POWER (DC IN 6V)		
J5	1-563-330-11	JACK (TAPE/REMOTE)		
L1	1-410-993-11	INDUCTOR CHIP 1UH		
L2	1-410-992-11	INDUCTOR CHIP 0.82UH		
L3	1-410-992-11	INDUCTOR CHIP 0.82UH		
L4	1-412-008-11	(EXCEPT West Germany,Italian) ...INDUCTOR CHIP 15UH		
L5	1-410-658-31	INDUCTOR CHIP 220UH		
L6	1-410-999-11	INDUCTOR CHIP 3.3UH		
L7	1-412-005-11	INDUCTOR CHIP 8.2UH		
L8	1-410-987-11	INDUCTOR CHIP 0.33UH		
L9	1-410-994-11	INDUCTOR CHIP 1.2UH		
L10	1-410-985-11	INDUCTOR CHIP 0.22UH		
L13	1-410-991-11	INDUCTOR CHIP 0.68UH		
L14	1-410-989-11	INDUCTOR CHIP 0.47UH		
L15	1-410-988-11	INDUCTOR CHIP 0.39UH		
L16	1-412-002-31	INDUCTOR CHIP 4.7UH		
L17	1-410-658-31	INDUCTOR CHIP 220UH		
L18	1-412-011-31	INDUCTOR CHIP 27UH		
L19	1-410-992-11	INDUCTOR CHIP 0.82UH		
L20	1-460-032-11	COIL, CHOKE 100UH		
LCD201	1-808-920-11	DISPLAY PANEL, LIQUID CRYSTAL		
Q1	8-729-123-86	TRANSISTOR 2SK238-K16		
Q2	8-729-116-64	TRANSISTOR 2SK508-K51		
Q3	8-729-116-64	TRANSISTOR 2SK508-K51		
Q4	8-729-116-64	TRANSISTOR 2SK508-K51		
Q5	8-729-208-47	TRANSISTOR 2SK210-GR		
Q6	8-729-116-64	TRANSISTOR 2SK508-K51		
Q7	8-729-102-07	TRANSISTOR 2SC2223-F13		
Q8	8-729-208-47	TRANSISTOR 2SK210-GR		
Q9	8-729-102-07	TRANSISTOR 2SC2223-F13		
Q10	8-729-102-07	TRANSISTOR 2SC2223-F13		
Q11	8-729-903-30	TRANSISTOR DTC144TK		
Q12	8-729-903-30	TRANSISTOR DTC144TK		
Q13	8-729-123-86	TRANSISTOR 2SK238-K16		
Q14	8-729-100-66	TRANSISTOR 2SC1623		
Q15	8-729-901-01	TRANSISTOR DTC144EK		
Q16	8-729-901-01	TRANSISTOR DTC144EK		
Q17	8-729-100-66	TRANSISTOR 2SC1623		
Q18	8-729-100-66	TRANSISTOR 2SC1623		
Q19	8-729-901-01	TRANSISTOR DTC144EK		
Q20	8-729-901-01	TRANSISTOR DTC144EK		
Q21	8-729-901-01	TRANSISTOR DTC144EK		
Q22	8-729-901-01	TRANSISTOR DTC144EK		
Q23	8-729-100-66	(EXCEPT Saudi Arabia) ...TRANSISTOR 2SC1623		
Q24	8-729-100-66	(EXCEPT Saudi Arabia) ...TRANSISTOR 2SC1623		
Q25	8-729-100-66	(EXCEPT Saudi Arabia) ...TRANSISTOR 2SC1623		
Q26	8-729-100-66	TRANSISTOR 2SC1623		
Q27	8-729-100-66	TRANSISTOR 2SC1623		
Q28	8-729-800-37	TRANSISTOR 2SD1048-X7		
Q29	8-729-800-37	TRANSISTOR 2SD1048-X7		
Q30	8-729-900-51	TRANSISTOR DTA114TK		
Q31	8-729-100-66	TRANSISTOR 2SC1623		
Q32	8-729-100-66	TRANSISTOR 2SC1623		
Q33	8-729-807-87	TRANSISTOR 2SB1295-UL6		
Q34	8-729-903-30	TRANSISTOR DTC144TK		
Q35	8-729-903-30	TRANSISTOR DTC144TK		
Q36	8-729-903-30	TRANSISTOR DTC144TK		
Q37	8-729-903-30	TRANSISTOR DTC144TK		
Q38	8-729-903-30	TRANSISTOR DTC144TK		
Q39	8-729-900-51	TRANSISTOR DTA114TK		
Q40	8-729-900-51	TRANSISTOR DTA114TK		
Q41	8-729-900-51	TRANSISTOR DTA114TK		
Q42	8-729-900-51	TRANSISTOR DTA114TK		
Q43	8-729-900-51	TRANSISTOR DTA114TK		
Q44	8-729-807-87	TRANSISTOR 2SB1295-UL6		
Q45	8-729-100-66	TRANSISTOR 2SC1623		
Q46	8-729-807-87	TRANSISTOR 2SB1295-UL6		
Q47	8-729-100-66	TRANSISTOR 2SC1623		
Q48	8-729-102-07	TRANSISTOR 2SC2223-F13		
Q49	8-729-800-37	TRANSISTOR 2SD1048-X7		

Ref.No.	Part No.	Description
Q201	8-729-220-93	TRANSISTOR 2SK209G
Q202	8-729-220-93	TRANSISTOR 2SK209G
Q203	8-729-100-66	TRANSISTOR 2SC1623
Q204	8-729-100-66	TRANSISTOR 2SC1623
Q205	8-729-100-66	TRANSISTOR 2SC1623
Q206	8-729-100-66	TRANSISTOR 2SC1623
R1	1-216-081-00	METAL GLAZE 22K 5% 1/10W
R2	1-216-083-00	METAL GLAZE 27K 5% 1/10W
R3	1-216-033-00	METAL GLAZE 220 5% 1/10W
R4	1-216-017-00	METAL GLAZE 47 5% 1/10W
R5	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R7	1-216-029-00	(EXCEPT West Germany,Italian) ...METAL GLAZE 150 5% 1/10W
R8	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R9	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R10	1-216-113-00	METAL GLAZE 470K 5% 1/10W
R11	1-216-025-00	METAL GLAZE 100 5% 1/10W
R12	1-216-017-00	METAL GLAZE 47 5% 1/10W
R13	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R14	1-216-089-00	METAL GLAZE 47K 5% 1/10W
R15	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R16	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R17	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R18	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R19	1-216-025-00	METAL GLAZE 100 5% 1/10W
R20	1-216-025-00	METAL GLAZE 100 5% 1/10W
R21	1-216-017-00	METAL GLAZE 47 5% 1/10W
R22	1-216-025-00	METAL GLAZE 100 5% 1/10W
R23	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R24	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R25	1-216-025-00	METAL GLAZE 100 5% 1/10W
R26	1-216-089-00	METAL GLAZE 47K 5% 1/10W
R27	1-216-041-00	METAL GLAZE 470 5% 1/10W
R28	1-216-017-00	METAL GLAZE 47 5% 1/10W
R29	1-216-017-00	METAL GLAZE 47 5% 1/10W
R30	1-216-021-00	METAL GLAZE 68 5% 1/10W
R31	1-216-081-00	METAL GLAZE 22K 5% 1/10W
R32	1-216-089-00	METAL GLAZE 47K 5% 1/10W
R33	1-216-025-00	METAL GLAZE 100 5% 1/10W
R34	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R35	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R36	1-216-085-00	METAL GLAZE 33K 5% 1/10W
R37	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R38	1-216-089-00	METAL GLAZE 47K 5% 1/10W
R39	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R40	1-216-121-00	METAL GLAZE 1M 5% 1/10W
R41	1-216-123-11	METAL GLAZE 1.2M 5% 1/10W
R42	1-216-081-00	METAL GLAZE 22K 5% 1/10W
R43	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R44	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R45	1-216-037-00	METAL GLAZE 330 5% 1/10W
R46	1-216-017-00	METAL GLAZE 47 5% 1/10W
R47	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R48	1-216-055-00	METAL GLAZE 1.8K 5% 1/10W
R49	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R50	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R51	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R52	1-216-035-00	METAL GLAZE 270 5% 1/10W
R53	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R54	1-216-093-00	METAL GLAZE 68K 5% 1/10W
R55	1-216-089-00	METAL GLAZE 47K 5% 1/10W
R56	1-216-025-00	METAL GLAZE 100 5% 1/10W
R57	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R58	1-216-077-00	METAL GLAZE 15K 5% 1/10W
R59	1-216-085-00	METAL GLAZE 33K 5% 1/10W
R60	1-216-041-00	METAL GLAZE 470 5% 1/10W
R61	1-216-089-00	METAL GLAZE 47K 5% 1/10W
R62	1-216-049-00	(EXCEPT Saudi Arabia) ...METAL GLAZE 1K 5% 1/10W
R63	1-216-079-00	(EXCEPT Saudi Arabia) ...METAL GLAZE 18K 5% 1/10W
R64	1-216-107-00	(EXCEPT Saudi Arabia) ...METAL GLAZE 270K 5% 1/10W
R65	1-216-061-00	(EXCEPT Saudi Arabia) ...METAL GLAZE 3.3K 5% 1/10W
R66	1-216-065-00	(EXCEPT Saudi Arabia) ...METAL GLAZE 4.7K 5% 1/10W
R67	1-216-069-00	(EXCEPT Saudi Arabia) ...METAL GLAZE 6.8K 5% 1/10W
R68	1-216-069-00	(EXCEPT Saudi Arabia) ...METAL GLAZE 6.8K 5% 1/10W
R69	1-216-121-00	(EXCEPT Saudi Arabia) ...METAL GLAZE 1M 5% 1/10W
R71	1-216-061-00	(EXCEPT Saudi Arabia) ...METAL GLAZE 3.3K 5% 1/10W
R72	1-216-025-00	(EXCEPT Saudi Arabia) ...METAL GLAZE 100 5% 1/10W
R73	1-216-081-00	METAL GLAZE 22K 5% 1/10W
R74	1-216-081-00	METAL GLAZE 22K 5% 1/10W
R75	1-216-025-00	(EXCEPT Saudi Arabia) ...METAL GLAZE 100 5% 1/10W
R76	1-216-085-00	METAL GLAZE 33K 5% 1/10W
R77	1-216-089-00	METAL GLAZE 47K 5% 1/10W
R78	1-216-081-00	METAL GLAZE 22K 5% 1/10W
R79	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R80	1-216-025-00	METAL GLAZE 100 5% 1/10W
R81	1-216-748-11	METAL GLAZE 39K 5% 1/10W
R82	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W
R83	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R84	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R85	1-216-089-00	METAL GLAZE 47K 5% 1/10W
R86	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W
R87	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W
R88	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W
R89	1-216-089-00	METAL GLAZE 47K 5% 1/10W
R90	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W
R91	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W
R92	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W
R93	1-216-025-00	METAL GLAZE 100 5% 1/10W
R94	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R95	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R96	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R97	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R99	1-216-081-00	METAL GLAZE 22K 5% 1/10W
R100	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R101	1-216-081-00	METAL GLAZE 22K 5% 1/10W
R102	1-216-025-00	METAL GLAZE 100 5% 1/10W
R103	1-216-025-00	METAL GLAZE 100 5% 1/10W
R104	1-216-001-00	METAL GLAZE 10 5% 1/10W
R105	1-216-001-00	METAL GLAZE 10 5% 1/10W
R106	1-216-025-00	METAL GLAZE 100 5% 1/10W
R107	1-216-025-00	METAL GLAZE 100 5% 1/10W
R108	1-216-025-00	METAL GLAZE 100 5% 1/10W
R109	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W
R110	1-216-093-00	METAL GLAZE 68K 5% 1/10W
R111	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W
R112	1-216-093-00	METAL GLAZE 68K 5% 1/10W
R113	1-216-099-00	METAL GLAZE 120K 5% 1/10W
R114	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R115	1-216-041-00	METAL GLAZE 470 5% 1/10W
R116	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R117	1-216-037-00	METAL GLAZE 330 5% 1/10W
R118	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W
R119	1-216-041-00	METAL GLAZE 470 5% 1/10W
R120	1-216-029-00	METAL GLAZE 150 5% 1/10W
R121	1-216-085-00	METAL GLAZE 33K 5% 1/10W
R122	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R123	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W
R126	1-216-105-00	METAL GLAZE 220K 5% 1/10W
R127	1-216-105-00	METAL GLAZE 220K 5% 1/10W
R128	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R129	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R130	1-216-091-00	METAL GLAZE 56K 5% 1/10W
R131	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R201	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W
R202	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R203	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W
R204	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W
R205	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W
R206	1-216-121-00	METAL GLAZE 1M 5% 1/10W
R207	1-216-097-00	METAL GLAZE 100K 5% 1/10W
R208	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R209	1-216-121-00	METAL GLAZE 1M 5% 1/10W
R210	1-216-121-00	METAL GLAZE 1M 5% 1/10W
R217	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R218	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R219	1-216-047-00	METAL GLAZE 820 5% 1/10W
R220	1-216-121-00	METAL GLAZE 1M 5% 1/10W
R221	1-216-089-00	METAL GLAZE 47K 5% 1/10W
R222	1-216-033-00	METAL GLAZE 220 5% 1/10W
R223	1-216-025-00	METAL GLAZE 100 5% 1/10W
R224	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R225	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R226	1-216-025-00	METAL GLAZE 100 5% 1/10W
R227	1-216-117-00	METAL GLAZE 680K 5% 1/10W
R228	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R229	1-216-129-00	METAL GLAZE 2.2M 5% 1/10W
R230	1-216-049-00	METAL GLAZE 1K 5% 1/10W
RB1	1-236-631-21	RES, NETWORK 2.2K
RB2	1-236-631-21	RES, NETWORK 2.2K
RV1	1-238-868-11	RES, VAR, CARBON 250K (FINE TUNING)
RV2	1-238-667-21	RES, ADJ, CERMET 100K
RV3	1-238-667-21	RES, ADJ, CERMET 100K
RV4	1-238-665-11	RES, ADJ, CERMET 22K
RV5	1-238-869-11	RES, VAR, SLIDE 20/20 (VOLUME)
S1	1-570-134-11	SWITCH, SLIDE (SENS)
S2	1-571-717-21	SWITCH, SLIDE (AM MODE)
S3	1-572-186-11	SWITCH, SLIDE (TONE)
S201	1-554-303-21	SWITCH, KEY BOARD (0)
S202	1-554-303-21	SWITCH, KEY BOARD (1)
S203	1-554-303-21	SWITCH, KEY BOARD (2)
S204	1-554-303-21	SWITCH, KEY BOARD (3)
S205	1-554-303-21	SWITCH, KEY BOARD (4)
S206	1-554-303-21	SWITCH, KEY BOARD (5)
S207	1-554-303-21	SWITCH, KEY BOARD (6)
S208	1-554-303-21	SWITCH, KEY BOARD (7)
S209	1-554-303-21	SWITCH, KEY BOARD (8)
S210	1-554-303-21	SWITCH, KEY BOARD (9)
S211	1-554-303-21	SWITCH, KEY BOARD (AM EXECUTE)
S212	1-554-303-21	SWITCH, KEY BOARD (FM EXECUTE)
S213	1-554-303-21	SWITCH, KEY BOARD (SCAN TUNING START/STOP/STANDBY)
S214	1-554-303-21	SWITCH, KEY BOARD (KEY PROTECT)
S215	1-554-303-21	SWITCH, KEY BOARD (MANUAL TUNING/SET/⇨+)
S216	1-571-187-11	SWITCH, TACTIL (REFLOW TYPE)(ON/OFF)
S217	1-554-303-21	SWITCH, KEY BOARD (SLEEP)
S218	1-554-303-21	SWITCH, KEY BOARD (MANUAL TUNING/SET/⇦−)
S219	1-554-303-21	SWITCH, KEY BOARD (BAND/ALARM)
S220	1-554-303-21	SWITCH, KEY BOARD (ENTER/TIME)
S221	1-553-510-00	SWITCH, SLIDE (9K/10K)
S222	1-570-204-11	SWITCH, KEY BOARD (LIGHT)
S223	1-571-754-11	SWITCH, PUSH (1 KEY)(POWER LOCK)
SP1	1-502-631-00	SPEAKER
T1	1-426-468-11	TRANSFORMER, HIGH FREQUENCY
T2	1-426-357-11	TRANSFORMER, RF
T3	1-404-780-21	TRANSFORMER, IF
T4	1-404-779-21	TRANSFORMER, IF
T5	1-404-896-11	TRANSFORMER, IF
T6	1-406-371-11	COIL (OSC)
T7	1-406-372-11	COIL (OSC)
T8	1-460-037-11	COIL (WITH CORE)
T9	1-460-038-11	COIL (WITH CORE)
T10	1-460-039-11	COIL (WITH CORE)
T11	1-404-444-11	(EXCEPT Saudi Arabia)...TRANSFORMER, IF
T12	1-404-898-11	(EXCEPT Saudi Arabia)...TRANSFORMER, IF
T13	1-449-902-11	TRANSFORMER, DC-DC CONVERTER
X1	1-578-062-11	VIBRATOR, CRYSTAL (55.390MHz)
X2	1-577-708-11	(EXCEPT Saudi Arabia) ...VIBRATOR, CERAMIC (456.5kHz)
X201	1-567-769-11	VIBRATOR, CRYSTAL (75kHz)
XF1	1-567-987-11	FILTER, CRYSTAL (55.8425MHz)

ACCESSORY & PACKING MATERIAL

⚠1-463-455-21 (UK).....ADAPTOR, AC
⚠1-463-659-11 (EXCEPT US,Canadian,UK)
....ADAPTOR, AC (AC-240)
⚠1-463-747-12 (US).....ADAPTOR, AC (AC-D4M)
⚠1-465-403-11 (Canadian)...ADAPTOR, AC (AC-240)

⚠1-506-443-00 (EXCEPT West Germany)...ADAPTOR, PLUG

3-751-155-11 (AEP-TYPE1,2,UK,French)
...MANUAL, INSTRUCTION
3-751-155-21 (US,Canadian)....MANUAL, INSTRUCTION
3-751-155-41 (AEP-TYPE1,2)....MANUAL, INSTRUCTION
3-751-155-61 (West Germany)...MANUAL, INSTRUCTION

3-893-802-06 BOOK, GUIDE, WAVE

*3-893-814-01 CUSHION (UPPER)
*3-893-815-01 (EXCEPT US)....CUSHION (LOWER)
*3-893-815-11 (US).....CUSHION (LOWER)

*3-893-816-01 INDIVIDUAL CARTON (BODY)
*3-893-817-01 INDIVIDUAL CARTON (LID)

*3-893-819-01 CASE, ACCESSORY
3-893-861-01 CASE, CARRYING

8-953-314-90 HEADPHONE MDR-E757 SET
A-3604-156-A ANTENNA ASSY (AN-61), COMPACT
X-3329-657-1 ATTACHMENT

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	**Note:** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.